DOCUMENT RESUME

ED 125 511 HE 008 110

TITLE The President as Educational Leader.
INSTITUTION Association of American Colleges, Washington, D.C.
PUB DATE 76
NOTE 95p.
AVAILABLE FROM Association of American Colleges, 1818 R Street, N.W., Washington, D.C. 20009

EDRS PRICE MF-$0.83 HC-$4.67 Plus Postage.
DESCRIPTORS *Administrator Responsibility; *Administrator Role; *Chief Administrators; Educational Planning; General Education; *Higher Education; Leadership; *Leadership Responsibility; Liberal Arts; *Presidents; Trend Analysis

ABSTRACT

Beginning with the premise that educational leadership is still the principal responsibility of the college and university president, the American Association of Colleges conducted a series of seminars for presidents on their role as educational leaders that especially examined new ways in which such leadership could be exercised. The seminar papers reproduced include discussion of educational trends, planning, management, and liberal education. (Author/KE)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

the president as EDUCATIONAL LEADER

THE PRESIDENT AS EDUCATIONAL LEADER

ASSOCIATION OF AMERICAN COLLEGES
WASHINGTON, D.C.
1976

3

Table of Contents

Preface v

The President as Educational Leader,
John David Maguire 1

Giving Triumph a Chance,
Buell G. Gallagher 11

On Limits to Growth, a Second Academic Revolution, and the President as Educational Leader,
Lewis J. Perelman 23

Planning as a Total Process: A Systemic View of College Management,
W. Patrick Dolan 47

Freedom and the Scope of Liberal Education,
Joseph J. Schwab 61

Contributors

W. PATRICK DOLAN
Independent Consultant in Educational Management and Organizational Development

BUELL G. GALLAGHER
President Emeritus, City College of New York

JOHN D. MAGUIRE
President, State University of New York, College at Old Westbury

LEWIS J. PERELMAN
Consultant and co-author of **Growth and Education**, a report to the Rockefeller Brothers Fund on the implications of growth policy for postsecondary education

JOSEPH J. SCHWAB
Visiting Fellow, The Center for the Study of Democratic Institutions; formerly professor of natural sciences and of educational philosophy, University of Chicago

Preface

One of the assumptions that govern much of our thinking about college and university presidents is that they provide educational leadership for the academic community and for society at large. When we are pressed for examples of such leadership our thoughts turn to the giants of the first half of this century—Frank Porter Graham, Nicholas Murray Butler, Frank Aydelotte and the like, the list of whom is long. However, when we turn to the contemporary scene the list becomes less clear.

This simple exercise may reveal one of the paradoxes of our time—that while our academic institutions need educational leadership perhaps more than at any time in this century, the task of providing it has become far more complex. The reason surely is not because men and women capable of providing it do not exist. Rather, the situation may reflect the tensions and strains which colleges and universities share with other contemporary social institutions—financial stringency, politicization of constituencies, loss of a sense of mission, diminution of public support. The president, caught up by the demands of crisis management, may simply be unable to devote thought and energy to educational leadership. Yet there are some who maintain that not only is leadership possible, it is actually available if one knows what to look for. Changes in the degree of institutional complexity and in structure and organization have created a new style of educational leadership, less obvious and perhaps scarcely recognizable by reference to the imagery of the towering presidential leader of an earlier era, but leadership nevertheless.

Believing that educational leadership is still the principal responsibility of the college and university president, AAC designed and conducted a series of three seminars for presidents on their role as educational leaders. These seminars were intended to examine new ways in which such leadership could be exercised on the educational front and, second, to provoke discussion on substantive educational issues by introducing new perspectives on the curriculum and our society. We believe that they were generally successful in achieving those objectives.

The papers reproduced here were delivered at one or more of the seminars. Regrettably, a few presentations could not be included in this collection for a variety of reasons.

The seminars and this publication were underwritten by the Andrew W. Mellon Foundation, and we are indeed grateful for the foundation's generous support. We are indebted also to the contributors who so generously shared their experience with the participants: Peter H. Armacost, Lester and Courtney Carr, John R. Cole-

man, W. Patrick Dolan, Mervin B. Freedman, Buell G. Gallagher, John D. Maguire, Lewis J. Perelman and Joseph J. Schwab. Appreciation is due also to Kathleen McGurl and Samuel H. Magill of the AAC staff who planned and administered the seminars.

Frederic W. Ness
President
Association of American Colleges

THE PRESIDENT AS EDUCATIONAL LEADER

John David Maguire

I begin with three texts. The first is from a useful volume on the college presidency by Michael Cohen and James March, entitled **Leadership and Ambiguity: The American College President** (which I presuppose in this presentation and urge you to read if you haven't); the second is from James Perkins' 1967 study of New York State's college and university presidents; and the third from that perennial, Alfred North Whitehead. Cohen and March write:

> Although presidents are educators by experience and by identification, they are not educators by behavior. They notice the anomaly. One of the most reliable complaints of an American college president is the degree to which he is removed from *educational* matters. He is committed to success in his job and yet he does not consider academic policy achievements as a major factor in the evaluation of his success. He does not feel he has any serious leverage. As for educational leadership he is a nostalgic realist.[1]

Perkins and his collaborators write:

> Most incumbents testify that they find it difficult, if not impossible, to direct their efforts towards being most influential in the area where they perceive their greatest responsibility—*providing educational purpose and direction for their institutions.* Although they work a long and tiring week, they are forced to divide their time to attend to a multiplicity of functions and, as a consequence, they find their success diminished by relatively inconsequential problems. (Perkins *et al.*, 1967, stress in original)[2]

Whitehead declared:

> The tragedy of the world is that those who are imaginative have but slight experience, and those who are experienced have feeble imaginations. Fools act on imagination without knowledge, pedants act on knowledge without imagination. The task of a university is to weld together imagination and experience.[3]

Nostalgic realists, trivia-beset technicians, prosaic pedants with enfeebled imagination: sobering characterizations of presidents in educational and curricular domain, especially when contrasted to the theme of these seminars: The President as Creative Leader.

I take it as a given that many of us were drawn to the presidency by the prospect of implementing an educational or curricular vision. Now in the presidency, however, we find that dimension of our activity increasingly slighted and pushed down the list of things we do. The institutional context in which we work often prevents our exercising educational leadership even when we've managed to keep that

commitment high on our priority list. Nostalgic realists, most of us are trapped in a position of limited, if not dwindling, expectations about our *educational* leadership. And yet we yearn to find a way to realize the dreams that drew us to the presidency initially.

—What really accounts for this situation?

—What might produce a change in perception, perspective, performance in this fundamental area?

—Are there practical steps that might contribute to our becoming more effective educational leaders?

—Are there some undergirding philosophical considerations that should find their way into our perspectives?

These are the four issues I want to explore with you. March and Cohen provide the mood for the exploration:

> The college president is human. His capabilities are limited, and his responsibility is limited by his capabilities. We believe there are modest gains to be made by making some changes in the perception of his role. We believe presidents can be more effective and more relaxed. We do not believe in magic.[1]

I. Enfeebled Educational Leadership: Why?

A piece by piece inventory of the elements that compose and contribute to our dilemma could consume our entire time. Instead of cataloguing complications, or sharing instantly recognized anecdotes, let us seek some fundamental causes behind the president's difficulty in functioning as an educational leader. I shall note five.

The first is the disequilibrium of our institutions occasioned primarily by the confusion over, or absence of, shared goals. This produces a situation that could be characterized as *mismatched expectations*, where participants do not receive, nor are their actions received, as what is desired or accepted.

The differences between students and faculty regarding the purposes and processes of education have been widened in most places to an alarming degree. Students seek job payoff, personal direction, a global (in contrast to a narrow specialist) approach to fields, teacher availability, and a disposition for each course to reach out and connect with all others. Where the values of research and publication as primary means for professional advancement continue to dominate, the expectations of faculty are point-for-point the obverse of their students'. In such a setting there is a profound disagreement at fundamental levels between key constituencies within the college. Students seek one set of things, faculty another. Where does the president stand on the issues? If he has a position, does it matter?

A modicum of reconciliation must be achieved even if by moving institutionally to a distinctly different, third position. How can this

be done?

The nature of educational policy itself and the means by which it is established and implemented is another factor in this problematic situation. For educational policy:

> . . . is the accretion of hundreds of largely autonomous actions taken for different reasons, at different times, under different conditions, periodically codified into what is presented as an educational program by the college catalog or a student or faculty handbook.[5]

Not only is there usually conflict between expectations resulting in the absence of shared goals, but a profound fragmentation of policy—not to mention a fragmentation in curriculum—and a fitfulness in the change process itself.

A third element in addition to mismatched expectations and fragmentation is the profound ambivalence about authority. Talcott Parsons and others have noted that until very recently academic professions have been essentially deviant. In a mercantile society like America, most men and women had to defy parental expectations to enter the academic profession. They were to have been doctor, lawyer, businessman, housewife. The choice of profession itself was in some measure an act of rebellion, and many still have arrested attitudes, deep ambivalences, toward authority. Indeed, ambivalence about authority and antipathy to it is probably especially active in institutions of learning.

Within the last decade, now that antipathy to authority has become much more widespread throughout society, presidents themselves have been beset by it. Even if we were clear about it and ourselves earlier, many are now unsure whether to be primarily initiators, aggressive pushers and thrusters, or reactive, facilitative mediators. The point is that ambivalence about authority seriously complicates the college context. While most faculty and students may seem opposed to its exercise most of the time, they also yearn at other moments—perhaps unhealthily so—for its appearance in actual power. Trustees often view it one-sidedly and wonder why the president doesn't establish order, and if necessary, move in and clean house! This crisis regarding authority and confusion regarding power must be recognized as a dilemma in which we all participate, especially prospective educational leaders.

A fourth factor is the difference in the perception and expectation of the president's role held by trustees, other administrators (and often faculty and students) *when* the president views himself primarily as an educator. National studies of trustee perceptions of the president confirmed that most trustees see the president's role as most like a mayor or a business executive and least like a teacher. They valued growth of the institution, its fiscal stability, quiet on the

campus, and the respect of the outside community well ahead of the quality of faculty, students and the academic program.

Of all the groups studied—trustees, faculty, other college administrators, students, other college presidents—all placed "quality of educational program" fairly far down their lists of what constituted a successful president. Studies of presidents themselves have shown that out of eight metaphors for leadership—manager, politician, mediator, chairman, entrepreneur, catalyst, judge, educator-philosopher-king—presidents overwhelmingly saw the job "primarily as a combination of the political leader and bureaucrat-entrepreneur."[6] Guess what rated last!

When Hemphill and Wahlberg asked 180 presidents of higher educational institutions in New York in 1966 to list what they would consider their major success in their job, they concluded their finding this way:

> Most responses had to do with the organizational development of the institution. Presidents mentioned such accomplishments as developing organizational charts, administrative planning, job descriptions for subordinate administrators and opening lines of communication. They also mentioned successes in the development of the physical plant or in the acquisition of funds for new programs, and in the strengthening of relations between the president and the students, the governing body and the faculty. Only two presidents mentioned development of the educational program as among their initial successes.[7]

Not only do others not regard as top priority the president's educational role, the president himself does not assign it high status.

Whatever its causes, most college presidents in their self-expectation and self-perceptions no longer seem to view educational, curricular, academic leadership among their leading roles. Did we once elevate it, only under the press of other demands to see it slide down the list? Did we conclude—far back or more recently—that circumstances were such that, while we reap other rewards, we had to forego the satisfaction of leading an institution educationally?

This leads to the fifth, final and most intimate element in our dilemma, which is that many of us may not possess a coherent educational vision or have in mind a consistent curricular or academic program. If we do not, that is surely understandable given the fire-fighting, tub-thumping, hand-shaking, head-knocking, budget-balancing character of our jobs. If we seek one, there is no better place and time than here and now. If we have one and are frustrated in gaining its implementation, this exploration may also be timely.

II. A Fresh Look: Reconsidering Educational Leadership

If mismatched expectations, fragmentation, ambivalence about

authority, confusion in perception of the president's role, and the fragility or absence of an educational vision are among the main elements frustrating the exercise of educational leadership, what are some considerations that might improve the situation?

While in some areas changes in behavior precede and cause subsequent changes in attitude and outlook, in the instance of the president's functioning as an educational leader changes in perception of the role and the context precede changes in program and performance.

I suggest five broad considerations. First, that the president might cease spending primary energies on the fashioning and statement of goals, out of the realistic recognition that shared goals, certainly at the conceptual level, are most unlikely to be widely achieved. Consider focusing instead on the establishment of relatively agreeable agendas for action. There are some communities where, to use current sociological parlance, fellowship precedes and generates tasks. Increasingly, however, given the dissolution of fellowship—which is the name for loss of community, the elusiveness and conflict of goals, contention between constituencies and individuals (leading March and Cohen to characterize most colleges as "semi-organized anarchies")—primary attention must be given to task. *What* should be done? What *must* be done? Task must precede and generate whatever fellowship may follow, created by working together. Excessive and unproductive energy can easily be expended working on goals—statements, which when fashioned at a level needed to gain significant assent are invariably so abstract and distant from doing that they cannot concretely inform or guide practical action. The fundamental levels of focus might better be upon what have been called "the middle axioms" and the basic level of their implementation, so that a helpful, accurate way of stating the conundrum is: "How shall we guide, how shall we lead toward constructive choices in the college in the absence of consistent, shared goals?"

Secondly, just as indirect communication and tacit exchanges are often more powerful than direct utterance and explicit statement, so is it the case that educational leadership is increasingly exercised *indirectly* through a variety of means other than the public statement, the convocation speech, the college-wide memorandum. The administrative organization of the college which we arrange (*i.e.*, the relation between the president and the dean of faculty or academic vice president and the role of the other officers) is a powerful determinant in whether aims are advanced or frustrated. While the degree of the president's direct involvement in day-to-day curricular matters is obviously critical, the degree to which the fiscal, physical, research and personnel features of the college's life are coordinated,

are genuinely consonant with and support its academic program, can spell the difference between successful and mediocre-to-wretched education. The decision whether to approve or reject faculty recommendations, especially on appointments, reappointments, promotions and tenure, may be a more powerful act of educational leadership than any public pronouncement.

How resources are allocated may be the most fundamental of all educational actions. The point here is to be reminded that there is a variety of means, instruments and actions through which educational leadership is exercised, that the most important are sometimes relatively inconspicuous, and that the modern dictum is nowhere more true than in this area: *how* a thing is done is *what* is done.

The third consideration relates in part, but not altogether, to our observations about authority. Few situations permit the president to be senior colleague any longer. He is now adversary. Not only does this signal the necessity for leadership styles other than gentle persuasion—which presupposes trust and support no longer sufficiently present in the faculty and student body. At the most personal levels, it means that the president who, like any human being, needs affection and esteem, must find them outside the college community itself. A terrible demoralization occurs when the president, needing to be loved, seeks it primarily within the college community which is psycho-politically incapable of providing it.

This personal identification of sources of satisfaction beyond the campus moves in the direction of another reality at a different level, namely, the need for the president as institutional representative to become a diplomat in order to achieve inter-institutional cooperation. Fewer barriers are harder to break than those between our institutions, still feeding on the fable that the educational system is *laissez-faire*, that the enterprise is free, competition is constructive, and the fittest will survive. The true educational leaders in the next decades, I believe, will be those who find the ways to make inter-institutional cooperation really work. How to capitalize on existing resources in the public, private and parochial sectors to the benefit of all? How to plan cooperatively to prevent duplication and under-utilization so that facilities, programs and faculties can serve all?

Just as the president as person must seek satisfaction beyond the campus, so the president as institutional head must seek the sharing of resources, plans, and the future itself with institutions other than his own.

Fourthly, a shift in our perception of educational leadership that might lead to its increased exercise could result from the reminder that leadership is not identical with control. Almost everything surrounding the presidential role tends toward this mistaken identifica-

tion: to lead is to control. But there is another, truer and more socially productive understanding of leadership, which is the energizing of people rather than the controlling of them. This perspective clearly speaks more toward challenging, facilitating, enabling than controlling, directing, manipulating. It suggests a role more like catalyst than coach. Presidential actions, so understood, may not be the public alpha and omega of academic practice, but may be the creation of altered contexts within which new possibilities may emerge, old arrangements negotiated, things changed.

Note finally the preoccupation to which presidents are heir with bricks and mortar, budgets and buildings, size and quantity. Called upon as we have been to grow, to woo backers and build facilities, it is no wonder that we become more concerned with where walls will be than what goes on within them, with size and shape more than substance. Our current and future circumstances, however, call for a fundamental reconsideration of the relations between quantity and quality. Attention will not automatically turn to questions of excellence and quality just because the building boom is ending. Indeed, quantitative preoccupations may only be heightened in times of steady state and retrenchment. But the persistent questions for presidents must be: Where are we going? How *well* are we proceeding? How good are our efforts?

Answers to these qualitative questions presuppose an educational vision, a consistent framework or perspective in relation to which they can be answered, which points us again toward the fundamental challenge.

III. Practical Steps Toward Improving Educational Leadership

These reflections upon goals and action, the direct and the indirect, on and off campus, controlling and catalyzing, quantity and quality, challenge us to seek concrete measures that might be taken to heighten educational leadership.

March and Cohen have a useful section expanding upon eight **Reader's Digest**-like exhortations:

—spend time at it
—persist
—trade status for substance
—facilitate participation by the opposition
—overload the system
—provide throw-aways
—manage unobtrusively
—keep interpreting history.

Their development of these suggestions is as fascinating as [illegible] useful.

Let me briefly note three basic arrangements being tried in various institutions that hold promise of facilitating improved presidential performance in the educational area.

One is the increasingly common practice of fixed terms for presidents, a notion given prominence a few years ago by Kingman Brewster and now practiced throughout the State University of New York. This arrangement includes periodic, extended self-evaluations by the president on his own performance, as well as written evaluations by representatives of the other major constituencies in the college. Terms are, of course, renewable and are coupled with a sabbatical between them for presidential renewal. Reappointment is a kind of reaffirmation and provides the president an opportunity to initiate a new or sharply revised educational program at the outset of each term. It allows a kind of renewed start. As one who has been through the process, I can attest that it constructively heightens self-consciousness about institutional aims and goals. It directs one's thinking toward a specific timetable for the realization of plans. It heightens constructive self-criticism.

A second arrangement being increasingly discussed in the private sector is the familiar "inside/outside" arrangement with a chancellor increasingly carrying the responsibility for extramural representation and interpretation of the college while the president is the on-campus leader of the institution. One interesting wrinkle in those institutions that have adopted this structure is the possibility of interchanging roles after a fixed period of time so that the officer bearing the primary extramural responsibility does not have to sacrifice for good his involvement in the details of the college's academic life.

A major variation of this arrangement, which I personally prefer, avoids titular inflation and the appearance of too many chiefs. It is the practice by which the lay chairman of the board of trustees takes a leave of absence from his regular job for a year and performs many of the functions associated with the responsibilities of an extramural chancellor. He becomes the primary fund-raiser and relieves the president of much outside interpretation, allowing the president to concentrate on local matters, particularly the college's educational program.

I have already indicated how the fashioning of new forms of interinstitutional arrangements might reduce wearing competition between sister institutions. It could also result in a reduction of duplicate effort by presidents as well as in the necessity for duplicate services. I am convinced that there is a deep connection between interinstitutional cooperation and the effectiveness of the individual pres-

ident as an educational leader. To the extent that all presidents are relieved in some measure from each doing the same thing, energy is freed that may be applied to fundamental educational tasks.

There are, of course, no gimmicks or arrangements that, by themselves or in combination, will assure the emergence or re-emergence of the president as an educational leader. On the other hand, however, some organizational arrangements virtually assure that he cannot do much in this area—he will be prevented from it even if he desires it—while others at least set a framework within which he might focus himself on educational concerns.

IV. Recovering and Asserting Educational Leadership

Briefly and in conclusion, I mention five notions that, for me, have to be ingredient in, backdrop for, any complete portrait of the president as educational leader. None should be used as an excuse for lack of performance, but they point to realities not to be ignored.

One is the fact of human aging. Its effects on the president's psyche and physique differ from president to president. But it is a fact which, if acknowledged, can be constructively built into altered strategies, changed pace, and shifting style. The recognition of aging also underlines the basic need to find means for personal replenishment and rejuvenation as well as the periodic reorientation of perspective and program. One test of the way we pursue our educational efforts might well be: Is it age-appropriate? Another: Does it replenish as well as drain, restore as well as empty?

A second reality is the unevenness, even spasmodic character, of fortune. There are instances we each know well where presidential colleagues (and sometimes ourselves) are deemed successful by a combination of circumstances that can only be called fortuitous, while others (and sometimes ourselves) have been judged to have floundered or failed again through a combination of factors quite beyond the president's control. A splendid perspective upon one's tasks, as energetic a commitment as age allows, a good plan and ample pluckiness all together may sometimes still fall short of the vision's realization, for reasons by no means all of the president's making. Then it is that one must ponder the vagaries of fortune. And when the mark is massively missed the president is driven to a third consideration: the ubiquity of the tragic.

Some may be graced with the conviction that the tragic is not the final word on well-intended human efforts. But honesty requires its use as a principle for interpreting history, what occurs on this earth in time and space. One may follow well-meaning exhortations to the letter—including those concerned with educational leadership—only to see his efforts stymied and dreams shattered. We need not brood

about it or adopt melancholic miens, but the tragic is a fact and dimension of our lives.

That having been said, we are still challenged to exemplify in our efforts so far as possible the human excellence to which we aspire. At a minimum, the college president concerned to be an educational leader will exhibit a certain stance toward learning and the work of intellect. He will resist the lure of anti-intellectualism so characteristic of those with whom he spends a lot of his off-campus time. He will not demean scholarship or the work of the mind because of the behavior of some faculty. He will not succumb to consumeristic vocationalism. He will, instead, body forth an intellectual orientation that signals his own obsession with elusive excellence.

As several texts set the tone for our exploration, this one from Charles Péguy with its comment on the price of real change, states the note on which we conclude:

> The longer I live, citizen, the less I believe in the efficiency of sudden illuminations that are not accompanied or supported by serious work, the less I believe in the efficiency of conversion, extraordinary, sudden and serious, in the efficiency of sudden passions, and the more I believe in the efficiency of modest, slow, molecular, definitive work. The longer I live the less I believe in the efficiency of an extraordinary sudden social revolution, impersonal dictatorship—and the more I believe in the efficiency of modest, slow, molecular, definitive work.

[1]Michael Cohen and James March, **Leadership and Ambiguity: The American College President** (New York: McGraw-Hill, 1974), p. 108.

[2]James A. Perkins, **College and University Presidents** (Albany: New York State Regents, 1967), p. 125.

[3]Alfred North Whitehead, **The Aims of Education** (New York: New American Library, 1959), p. 19.

[4]March and Cohen, *op. cit.*, p. 5.

[5]*Ibid.*, p. 104.

[6]*Ibid.*, p. 60.

[7]John K. Hemphill and Herbert Wahlberg, **An Empirical Study of the College and University Presidents in the State of New York** (Albany: New York State Regents, 1966), pp. 48, 49.

GIVING TRIUMPH A CHANCE

Buell G. Gallagher

All the world is divided into two classes: those who divide others into two classes, and those who do not.

I divide all college presidents into two classes: those who are part of the problem, and those who are part of the answer.

I have no words of comfort for those who, by their own preference, fall into the first category. Instead, along with Hugh Wheldon, Managing Director of the BBC, I suggest that it is nobler to be concerned "not in avoiding failure at all costs but in giving triumph a chance."

I

When my active career as a college president came to its abrupt end in May 1969, it was my impression that most academic administrators had been for a decade preoccupied with problems of personal and institutional survival, as the forces of iconoclasm swept the nation's campuses. In the 1970's, as the upper and nether millstones of inflation and recession grind academic hopes, it is my impression that college presidents are still pretty much concerned over personal and institutional survival. It is my further comment that, in both the 1960's and the 1970's, administrators whose principal concerns centered around survival were too narrowly anxious. They were like so many latter-day Neros whose sole worry was to keep their fiddles tuned and their bows resined.

One is reminded that when the Chicago *Tribune* built its splendid new edifice in the early years of the Atomic Age, special provision was made in a sub-sub-basement for an air-conditioned and fully provisioned bomb shelter in which editors, reporters and printers might hide, await the settling of Atomic fall-out—and after a month or three, emerge to gather and print the news. What news, and for what readership, they did not specify. They were rightly anxious—but too narrowly so.

There are those who seek solace from the example of monks in Europe's Dark Ages, who retreated into their cells for the duration, pursued their studies, illuminated their manuscripts, and kept the candle of learning alight against the coming of a more propitious time. In our present circumstances, no such withdrawal into sanctity and sanctuary is available. The perils of these decades are the unhappy harbingers of a total world catastrophe which, if it is not averted, will provide neither home nor hope for tomorrow's survivors. Our times are as different from the Middle Ages as the panic

at Da Nang was different from the evacuation at Dunkirk.

Moreover, if troubles are overwhelming all other institutions, why should colleges be exempt? It ought to be a first rule of academic sanity to recognize that the campus is a microcosm of the world macroproblem. The money crunch is not peculiar to colleges. Ph.D.'s are not the only unemployed. As colleges share the problems and perils of the general society, by what magic are they, alone, to be spared?

We stand today at a moment in history on which the future will turn. History is always "in crisis"; and each crisis appears to be unique to those who confront it. But this time, the stakes are global and the problems point to total disaster.

The exponential increase of technological threats to civilization, the polarization of the peoples of the earth between the affluent and the wretched, and the approaching exhaustion of a finite supply of world resources in the presence of burgeoning populations—these are the late warning system of an impending future which will be disregarded at the cost of the quality of human life as we have known it—perhaps at the cost of human survival.

In my **Campus in Crisis**, I have attempted to outline the principal features of the world macroproblem. Given two or three hours, I could summarize the argument. Instead, for our purposes tonight, let a few broad strokes limn the outlines.

1. *It is a total problem.* It involves man's relationship to the ecosystem, as, man-made ecological imbalance threatens the physical basis of life: depletion of resources, overpopulation, fouling of the environment—a process which, if not reversed, has its foreseeable climax within the lifetime of those already born.

It involves the relationship of men to each other: the widening gap between the northern and southern hemispheres as the rich and the wretched clash over diminished supplies of food and energy; the continuing hostilities of hubris between the races (as, in our country, the Civil Rights efforts of the nation are halted by the newly aroused pride of the ethnics, and humaneness is caught between the backlash and the black-lash); the unceasing war, both civil and international, which is punctuated by intermittent periods of exhaustion falsely called peace.

It involves the emergence into probability of the fantastic aberrations of science-fiction: a developing technology which provides weapons of total destruction; a complex and delicately interrelated society which is vulnerable to sabotage and to terroristic blackmail; an advancing competence of the life-sciences which are about to be able to "engineer" the human body, mind and fetus and to control genetic transmission.

It involves pressures and stresses on the outer limits of human

endurance, beyond the adaptive capabilities of the human endocrine system.

It involves a crisis of the human spirit, as anxiety leads to despair and despair ends in fatalism—resignation becoming the last line of defense against suicide.

2. *It is a crisis of values.* The world macroproblem expresses, as it derives from, the warring of priorities and preferences. Every decision involves a trade-off, a choice which has to be made in the face of uncertainty and without firm guidelines which have been tested through time.

Reactions differ. The cynical and the callous resort to social Darwinism. Opportunists yearn for the man on the charger who will lead the people into totalitarianism of the right or the left. The disinherited lose hope, go underground, resort to sabotage, and wait for the coming of the revolution. Those who think themselves to be less unfortunate purchase another gun, put another lock on the door, and call loudly for law and order.

Sometimes clearly articulated, at other times only seen dimly through benumbed senses, our age knows a pervasive disquiet, a deepening uncertainty, an ubiquitous anxiety. The integrating core of life itself is disintegrating.

3. This world macroproblem, holistic and deep-rooted, is also *a single congeries.* It books no simplistic or piecemeal answer. As H. L. Mencken used to say, "For every complex problem there is always a simple answer: and it is wrong." The macroproblem which embraces the globe reaches back into history for its causal rootage. It involves long-range projection of remedial and corrective effort, the benign effects of which will in many instances not become apparent within the twentieth century. It calls for a level of sophistication which combines both facts and values in a single universe of meaning.

Temporary amelioration is chimerical. To the degree that amelioration succeeds, it only postpones the day of reckoning, thereby loosing an even more devastating flood when the dam finally breaks.

Where, then, is our hope?

If the solution to all our problems were to be left to political processes, temporary amelioration would be the best that could be hoped for. The four-year term of office sets the horizons of political foresight and prescribes the inevitable impermanence of public policy.

Neither can we expect long-range leadership to come from industry and finance. When interest rates range between ten and fifteen per cent, any economic consideration which looks more than five to ten years into the future is given low priority.

One doubts that the institutions of religion will rise to the occasion

and be able to provide much more than their accustomed ministrations of mercy, with a stiff upper lip and a word of compassion—important as these ministries may be.

As for the institutions of education, they are so thoroughly enmeshed with the total problem that it is difficult to see what contribution they might make—unless drastic changes are introduced.

If these words appear to give little comfort or encouragement to the profession of academic administrators, such is not my intention. On the contrary, what I am trying to say is that the words of encouragement can be spoken only to the man or woman who has ceased to be anxious about self and who has gone far beyond the narrow anxieties of a particular campus. Defensible as these narrower anxieties may be, and real as they are, they must be recognized as being part of a much larger context. College is not a self-contained ark of salvation; it is not severable from society. The world is a single congeries, all its parts interrelated. Positive and negative factors and forces are everywhere present. And when the situation is, on balance, deteriorating more rapidly than it is recovering, to be neutral is to be destructive. Any college which is more a part of the problem than of the answer will deserve its demise.

May I be autobiographical for a few moments? It was my good fortune to be a college president during the years of the Great Depression of the 1930's. I know what expedients of frugality, what heroisms of unappreciated effort, and what depths of dedication are needed to keep a college afloat in heavy financial seas. But I also know that the stamina and staying-power, and the evocative imagination essential to the time, can come from the collective strength of a fellowship of men and women who are convinced that keeping one little college in effective operation entails much larger consequences for good or ill than the success or failure of one institution. Rightly or wrongly, back there in the deep trough of the Great Depression, we believed that what we were doing was essential to the sanity, decency and hopes of the people of the nation, perhaps of the world. We *knew* that we were part of the answer. In that certainty, we came through those dark years—without public monies of any sort—with our budgets balanced, our endowments greatly increased, the faculty noticeably strengthened, educational effectiveness enhanced, and what were then pioneering curricular developments hammered out and solidly demonstrated. We constructed democratic procedures for campus governance which worked: Thirty years later, under another president, that college was able to avoid the iconoclastic excesses which unsettled sister campuses. In short, though greatly troubled in a deeply troubled world, we were spurred on by an overriding sense of mission which transcended all matters of mere survival.

But that is only half of my testimony from experience. Some three decades later, in the presidency of a different college, new troubles were not met with the same rich assets of academic strength. Something had happened in the groves of Academe. That something was described by the President's Commission on Campus Unrest in its 1970 report: "The last few decades have witnessed a serious erosion of any clear sense of mission in American higher education." In retrospect, I have come to the conclusion that the institution over which I presided in the 1960's was no exception to that general loss. It was Alexis de Tocqueville who wrote in 1835:

> It cannot be doubted that in the United States the instruction of the people powerfully contributes to the support of the democratic republic; and such must always be the case, I believe, where the instruction which enlightens the understanding is not separated from the moral education which amends the heart.

But 130 years later, as the President's Commission pointed out, the simultaneous acquisition of knowledge and the honing of conscience had ceased to be an united expression of a controlling sense of mission. The center fell apart. The institutional shell was emptied of redeeming purpose. The pleasant groves of Academe took on the character of Goldsmith's Deserted Village.

Believe me. I have seen it and experienced it both ways. I know whereof I speak.

II

In my **Campus in Crisis,** I have attempted to trace the historical processes by which higher education in America arrived at its present state. Without tonight rehearsing that story, let me direct attention to the end product of some 350 years of academic history. The end product is the value-free university.

To use Tocquevillian phrases, the value-free university has dissevered "the instruction which enlightens the understanding" from "the moral education which amends the heart." In so doing, the practitioners of the value-free system have seduced higher education into becoming merely an instrument of the general society—just one more disposable item in a profligate delivery system, worth no more than any other beer can when emptied and tossed aside. Moreover, the value-free university, created in the name of asepsis, has become a container which contaminates the contents it delivers. The value-free university is threatened because it is a threat to the survival of mankind.

The value-free university reached its peak of dominance in American higher education in the middle decades of the twentieth century. The practical applications of a proudly self-confident technology, offspring of scientism, had won a war, licked a depression, and

produced a plethora of the good things of life. Higher education shared the general euphoria of the post-War years as its numbers increased and faculty salaries soared, new buildings were erected, departments proliferated. We could put a man on the moon—and did. There appeared to be no limits to growth, no impediments to expectations.

And all of this had come about not by keeping a tight tether on science and technology, but by giving them free rein. Under the resulting amoral permissiveness, industry, finance, and politics did whatever it became possible to do (or to get away with). It was not necessary to have regard for impact on the physical environment or the straining of the social fabric. We proudly announced that we would put an end to poverty, hunger and disease. For the first time in the history of man, none would be in want or need. So we thought and so we boasted—and promised. Surely, if science and technology showered such gifts upon us, ingratitude would be unforgiveable!

All this had come about by a sort of perversion of Huxley's admonition to "sit down before truth as a little child," following to whatever consequences untrammeled inquiry might lead. Developing its strengths, marshalling its forces of sophistication and demonstrating its practical results, scientism took hold of the university at its very center. The controlling spirit of higher education now became the suspended judgment, the postponed satisfaction. Elevate the rational and suppress the intuitional. Make tolerance the supreme virtue. Disparage firm convictions. Question all established values and value-systems. Seize upon the right of academics to differ with impunity, and codify that right as academic freedom. Let each discipline pursue its own discrete and disparate ends. Let each individual serve only his own self-chosen norms. Let the curriculum be decided upon by interdepartmental treaty. Permit fine rhetoric to remain as the front matter of the catalog—so long as no one takes it seriously.

There was no longer any center of reference which gave meaning and direction to all parts of Academe. Depth of conviction was frowned upon. Authority—what remained of it—was purely ceremonial. The only remaining cement of academic society was found in reliance upon reason and civility. The center of the value-free university, quite appropriately, was a vacuum.

Then came the Now generation. Born of parents who, with their own bitter memories of depression and war, compensated for their own childhood deprivation by over-protecting their children and over-supplying them with the goods of life, the college generations of the sixties were a different breed. Rejecting the ersatz quality of a plastic society, they were suddenly stabbed awake by the onrush of a series of social crises and causes, the most volatile being racial injustice and the Viet Nam war.

The entering freshman was told by the value-free university that he wouldn't need his preferences and value-system: check it with the registrar. Suspend your emotions and delay your satisfactions. Put on a white coat, serve your laboratory apprenticeship, and wait for the Nobel Prize. Be rational and tolerant.

To the Now generation, this academic world of tolerance and rationality was intolerably irrational. They called tolerance hypocrisy. They swept it aside and established their own absolute: sincerity. They demanded that their college take sides in the great social issues which were coming across their vision—each like a newly risen sun of blinding brightness, illumining the shadowed recesses of greed, injustice, duplicity and exploitation. They demanded that the value-free university become value-centered; and when the institution did not respond, they denounced it as valueless. With what final forces of fury the confrontation between the value-free and the existential universities was finally joined all of us who lived through that decade know quite well.

What the Now generation was telling was this: The value-free university is wrong in putting all its eggs in the basket of scientism. In that accusation, they were, of course, correct. What the Now generation was also saying was that it was necessary to destroy the rational in order to experience the emotional. In that, of course, they were incorrect.

And now, in the mid-1970's, with the passing of the existentialist fever like last summer's skin rash, the deeply entrenched forces of scientism are quietly resurgent. Cloaked in reason and civility as before, the value-free university is reasserting itself. The same old premises are being trotted out. And that is why, as the ecological dénouement threatens, the surface calm of the campus is deeply foreboding. If the value-free university is now restored to its former dominance, the present campus quiet will prove to have been only the eye of the hurricane.

Five years ago, the Educational Policy Research Center at Stanford University prepared for the United States Office of Education a report entitled **Alternative Futures and Educational Policy.** The authors of that report, by their own route of inquiry, had arrived at substantially the same destination as I did in writing **Campus in Crisis.** They zeroed in on the central fact that the world macroproblem is "intrinsic in the basic operative premises of present industrialized society." Their report states that these basic operative premises must be corrected if mankind is to entertain any real hope of survival.

Education toward changing these premises is the paramount educational task for the nation and for the world. This means that education should be directed toward responsible stewardship of life on earth with

the associated changes in values and premises. It probably includes adaptation to a new and evolving metaphysic that will support these changes (since values are always rooted in an implicit picture of man-in-relation-to-his-world).

What has happened is that the absence of a controlling value-system has permitted wastrel man to arrive at his present moment of peril. And the value-free university has become the principal institutional source of the macrovacuum.

The truth is that the value-free university is both the victim and the perpetrator in a process which, if continued, leads to the destruction of the ecosystem, the polarization of mankind between the affluent and the disinherited, and the exponential increase of technological endangerment of the quality of life, perhaps of life itself.

III

What I have said up to this point may be summarized in an aphorism: The college must find and exemplify a new ethos and telos.

Not everyone agrees with that conclusion. Many voices today—whether in industry, finance, government and politics, religion or education, or any other field—claim that instead of looking for something new, we should revive the old time religion, reassert the American work-ethic, unfetter the pioneer spirit, and wait for it all to come out in the wash. It always has.

Unfortunately, events are answering the troglodytes. The work-ethic is of little help to those who cannot find employment. The pioneer spirit is evoked with difficulty when the frontier is no more. And those who expect it all to come out in the wash forget that *we* are the wash. With Lincoln, I hold that as the times are new, we must think anew and act anew.

I have put it in terms of the needed new synthesis of the Greek and Hebraic strands of Western culture, a new synthesis in contemporary terms for contemporary purposes. The authors of the Stanford report put the matter in terms of what they call "a new 'moral science.'" From the Club of Rome comes the concept of "ecological education" for an "ecological mode of thinking." Many colleges and universities, many groups and individuals are reaching out, testing, evaluating, revising, experimenting. The University of Wisconsin at Green Bay is a good example of an institution which makes the ecosystem an organizing center of its curriculum. In all of this there is hope.

But no scissors-and-paste reshaping of the college catalog will suffice. The game we have been playing is a losers' game. We know that—in our bones. That is why we are so anxious over survival. What is needed is not a new deal but a new game—a new game, with dif-

ferent goals and different rules. A contemporary poet[1] puts it thus:

let us run
with patient
endurance

the race
is settling
down to a long
grind behind
us are friends
and before

our winning
is not their
losing we keep
no trophy except
the faith

our triumph is over
ourselves our stumbling
does not defeat
his courage
his calling
his crown

Something of the ethos and telos of that restatement of ethic and technique is essential to the new effort. To win through to survival for itself, the college must work for the survival of mankind. No personal or institutional anxieties will suffice. We must reexamine and radically reconstruct the processes, content and goals of higher education in order that we may constructively serve the good of others.

All of this I have put into the 275 pages of my "Tract for the Times." But I am not the only one who writes such prescriptions. Here, for example, are the six things which higher education must do, as seen by Meadows and Perelman:[2]

—make the content problem-oriented;
—broaden the concept of education to include more than learning how to store and retrieve information;
—dispense with the concept of the disciplines;
—recognize that education may be the displacement rather than merely the acquisition of knowledge;
—provide an ecological conscience; and
—present a new concept of man along with the tools and facts that are taught.

[1]Thomas John Carlisle, "Running Together," A.D., April, 1975, p. 21.
[2]Dennis L. Meadows and Lewis Perelman, "Limits To Growth" in **The Future in the Making**, AAHE, p. 115.

Meadows and Perelman do not stop with that listing. They start with these six principles of educational reconstruction and then proceed to elaborate the meanings. I commend their entire contribution for most careful study.

But even Meadows and Perelman are too narrowly anxious. They are concerned almost exclusively with the crisis of the ecosystem. There are other dimensions of the macroproblem that we dare not overlook. To be sure, if we do not satisfactorily confront the ecological crises, nothing else will matter. But the same comment can be made about the crises which impend in that microcosm within man's skin and in the interrelationships of persons, families, groups, classes, races and nations.

We are confronted with a holistic congeries of crises. Only a holistic response will be equal to our hope of survival. In that context, the college must foreshadow what it foresees. It must practice what it teaches in order to teach what it practices. Thus, in addition to the dimensions cited in the six principles laid down by Meadows and Perelman, something needs to be said about that aspect of the college which is peculiarly the direct responsibility of college administrators. Four principles of campus governance may be suggested:

—achieve credibility in campus governance by widely sharing the processes of policy-making;

—achieve accountability by pinpointing responsibility for executing policy;

—achieve motivation by accompanying responsibility with appropriate degrees of power; and

—achieve system control through continuous feedback in reporting and review.

Measures of this character are essential because the old-line authoritarian procedures simply will not do the job. To begin with, the authority of the trustees and president has been so eroded and diluted that when the president is called upon to assume the posture of authority about all he can do is to posture. Moreover, to attempt to restore on campus the benevolent autocracies of a former day would be to unscramble the omelet. But without the administrative measures I have listed (or their working equivalent), the college remains a congeries of dissociated and incompatible factions. Unable to discover or to implement its own emerging value-system, how can it hope to be anything other than part of the macroproblem?

I come now to the crux of the matter. The first step in creating the ethos and telos essential to the task is to become imbued "with the recognition that the future can be deliberately created. It need not be passively experienced."[3] The bottom line of our analysis is what used to be called the problem of freedom of the will—the question

[3] *Ibid.*, p. 116.

as to whether man is the butt of a cosmic joke or a creative partner in shaping destiny. It is the issue of freedom and determinism. And that is precisely where the issue is joined with the value-free university.

Let us not deceive ourselves. There are times when ideas make a difference. Columbus proved that when he acted on the idea that the world was not flat. And if there are times when ideas make a difference, there may be times when ideas make *all* the difference. This is one of those times.

The central idea, without which we have little hope—but with which we can address the future in confidence—is the idea that the future is not foreclosed, that it is open, and that man's responsible choices can make the difference between disaster and survival. Neither fate nor chance but choice can rule history.

The value-free university has recognized one part of this analysis. It has opened up wide vistas of unlimited possibility, as it pursued its explanations. But that same value-free university has ignored the other half of the truth, namely, that man's choices can be determinative, that values are basic. Instead, the university which has thrust values aside has thereby paralyzed man's will to take corrective action, as it has explained away what it should have explained. For example, in the physical sciences, the value-free university has expounded a determinism (qualified by the principle of indeterminacy) in which volition is illusory. In the biological sciences, it has produced understandings of chemical and molecular processes which appear—to many laymen, at least—to rest all proximate causes of human life in the genes and the environment. In psychology, the path of determinism has led to the imprisonment of the psyche within a causal pattern in which we cannot see the Ego for the Id. Divested of his values, man himself feels valueless.

It is not difficult, in retrospect, to see how all this came about. By explaining away what should only have been explained, scientism has raised each of the several disciplines to its own pinnacle of omniscience. Hubris has replaced humility. The determinism which scientism assumes has declared that man's preferences and value-judgments are mere epiphenomena. The present result is that man's moral will has been paralyzed. Empowered with the tools of technology, man is able to do almost anything—but he knows not what to do. And even when he thinks he knows what to do, he knows not how to do it. Or knowing how, he lacks the decisive will.

That is the end result of a process in which values have become relative, comparative, and finally irrelevant. And that is why we are now where we are.

The age-old issue between determinism and freedom cannot now be dismissed as "purely academic." That issue is *the* issue, both for academicians and for the world.

As value-free scientism has given man tremendous potential—for good or for ill—it has also cut the ground of morality from beneath his feet.

But give Atlas a place to stand, and he will hoist the world on his shoulders.

ON LIMITS TO GROWTH, A SECOND ACADEMIC REVOLUTION, AND THE PRESIDENT AS EDUCATIONAL LEADER

Lewis J. Perelman

In a recent New York *Times* article on the difficulties of being a college president in the 1970's, Dr. Gail Parker, president of Bennington College, was quoted as saying: "The problems are serious, but at least they deal with the college . . . We know we're not going to solve the energy crisis at Bennington."[1] My familiarity with the current literature suggests that this attitude is typical of the higher education community. Yet the complex of serious problems —really a crisis—facing American higher education today does not involve only the individual college or university; rather, it is a single, local manifestation of a much vaster crisis, profound in nature and global in scope. The so-called "energy crisis" is only one aspect of the manifold "crisis-of-crises." Unless the energy crisis and this larger planetary crisis are solved at Bennington—and Ball State, and Brown, and Berkeley—they are not likely to be solved at all, and will result in a bleak future for our whole society, including our colleges and universities.

Dimensions of the "crisis-of-crises" include: the degradation of the environment; the explosive growth of human population; the rapid depletion of critical energy and material resources; the deleterious effects of technology; chronic political and economic instability; the gap between the "haves" and the "have-nots"; and the growing threats of war and violence. These elements define a state of *ecological crisis*—"ecological" in the sense that the crisis involves all the complex interrelationships among individual, society, and environment. The Club of Rome has dubbed this condition the "problèmatique humaine."

While awareness of the ecological crisis has become widespread in the 1970's, our knowledge about the dynamics of growth and development in a finite world, and about how to create sustainable futures for humankind, is actually quite limited. Scholarly study of these problems has accelerated rapidly in recent years, one result being the evolution of an intellectual and political movement that has seriously challenged the conventional wisdom about the desirability and even the possibility of continued exponential growth in a finite world.

The work of Prof. Jay Forrester of MIT and the activities sponsored by the Club of Rome have contributed much to the visibility

Copyright 1975, Lewis J. Perelman

of this movement. In his book, **World Dynamics**,[2] Forrester demonstrated graphically the inherent instability of the existing world economic/ecological system. Elaborating on Forrester's work, the Club of Rome's Project on the Predicament of Mankind, directed by Dr. Dennis Meadows, published in the spring of 1972 a provocative report entitled **The Limits to Growth**.[3] The Meadows and Forrester reports both bore the same central conclusion: World population and material forms of economic growth would reach their limits within a century. Inadequate control mechanisms in the world system were likely to lead to an overshoot and subsequent catastrophic collapse of world population and industrial capacity. These studies also indicated that conventional, *ad hoc* policies designed to stave off disaster would not be likely to produce stability, and even could make matters worse. The basic solution to this crisis—the achievement of a stable state of global equilibrium—would require a coherent and comprehensive set of long-term growth policies, designed with an adequate understanding of the complexity and dynamic behavior of the world social/ecological system. This in turn implies a radical transformation of modern industrial civilization, not only in structure and technology, but in lifestyles, goals, values, and even reality images.

It was evident virtually from the outset that the work done in recent years by Forrester, Meadows and the several other outstanding scholars concerned with the problems of growth and equilibrium had important implications for education, particularly higher education. The complex phenomena which are lumped under the rubric "limits to growth" have two general sets of implications for higher education. The first of these can be broadly termed "economic" and has to do with the management of higher education institutions. The second set of implications may be labelled "pedogogic" and is related to the basic purpose and process of education. These two sets of implications are, in effect, opposite sides of the same coin and must necessarily be considered together. A basic thesis of this discussion is that the solutions to the present and future economic problems of higher education will not be found in the realm of organizational economics but rather in the realm of educational philosophy and practice.

The Limits to Growth of Higher Education

World-wide economic morbidity has its roots in the reality of limits to growth and the failure of most political economists to recognize this reality much less deal competently with its consequences. Economies that became accustomed in the post-War era to rates of expansion ranging from 5 to 15% per year simply avoided developing any alternative policy to deal with the reality of a long-term

cessation of such growth. A similar phenomenon has occurred in the microcosm of the American higher education system. The significant difference is that in the latter, exponential growth was even more explosive than in many national economies, and the "brakes" have been applied far more suddenly and forcefully. One result is that the economic behavior of the higher education system will in many ways be an augur of the future behavior of the U.S. and world economies. A corollary is that the higher education economy will *not* find its salvation in the external economy. Nor will it be able fully to solve any of its problems until the economic environment stabilizes. But more on this later. Let us look at this phenomenon of the limits to growth of higher education in greater detail.

The growth which the U.S. higher education system experienced up to 1970 was truly phenomenal. The most explosive growth occurred after 1950 as a result of the GI Bill, general economic expansion, and eventually the "baby boom." But American colleges and universities enjoyed prodigious growth throughout the 100 years before 1970. From 1870 to 1970 enrollment in colleges and universities increased on the average at 5% per year, doubling every 14 years. Enrollments increased even during the Depression of the 1930's. The number of higher education institutions grew less rapidly, resulting in enrollment increases per institution of 3% per year, which may explain why the management of higher education institutions until the 1970's was based on the unchallenged axiom of unlimited growth in enrollment.

It is in the last 20 years or so, however, that U.S. higher education experienced its most extraordinary growth. This was due partly to an increasing proportion of high school graduates continuing their education in "postsecondary" educational institutions. In 1942, only about 15% of the 18-21 year old group were matriculated in higher education institutions; by 1972 this proportion had increased to about 50%.

But mainly the higher education explosion can be attributed to the post-War "baby boom." From 1940 to 1950, the total number of live births per year in the U.S. increased by 42%; from 1950 to 1960, when the baby boom "ended,"[4] the birth rate increased by an additional 17%. In the 1950's, the baby boom had a staggering influence on diapers, housing, automobiles, schools, and just about every other aspect of American society. From the early 1960's until the present, the effect of this tidal wave of warm bodies on the U.S. higher education system has been dramatic. In 1942 there were 1.4 million students enrolled in colleges and universities in the U.S.; in 1972 the number was 9.3 million. The 14-24 year old group increased five times faster during the 10 years from 1960 to 1970 than it did during the previous 70 years! The result: From 1960 to 1974

higher education enrollments grew by 152%.

This enormous growth in numbers of students both required and facilitated a similar expansion in the infrastructure of the higher education system. From 1942 to 1972, the number of higher education institutions increased from about 1,800 to about 3,000. To staff the new and bigger institutions, the total number of faculty grew during the same period from about 120 thousand to more than 500 thousand, an increase of over 300%. All of this expansion was expensive but a growing economy absorbed the cost without discomfort, and even with some enthusiasm, the widespread belief being that higher education contributed to the economic growth of both the individual and the nation. The stock market zoomed to the millenium, transporting college and foundation endowments to ethereal heights. Political economists announced that education would have to expand to absorb all the man-hours of leisure time that would come with the two-trillion-dollar economy. Meanwhile much of the growth in college and university budgets came from the increasing prodigality of what Garrett Hardin calls "Santa Claus," otherwise known as the Federal Government. From 1960 to 1975, annual federal expenditures on higher education grew from $700 million to $8.8 billion, an increase of 1150%.

In the 1970's, however, it has become increasingly clear that the soaring balloon of higher education in the U.S. is about to rupture, bringing the age of exponential growth to an end. The higher education system has now run into three major limits to further exponential growth.

The first of these is the limitation of enrollment. The last members of the baby boom generation soon will have entered the college age group. In the course of the next 15 years, the 18-22 year old group, traditionally supplying the bulk of the student population of colleges and universities, will progressively and dramatically decrease in size. From 1977 to 1983, the number of 18 year olds in the U.S. population will decrease by about 16%. According to Census Bureau data, the U.S. birth rate decreased by 24% in the period from 1960 to 1972. Thus, other things being equal, the freshman class in American colleges and universities would be about 1/4 smaller in 1990 than in 1978. Because of fluctuations in the birth rate over the last 15 years, the enrollment problems of colleges and universities over short periods could be even more traumatic than this long-term decline implies. For example, in the two years from 1970 to 1972, the total number of births per year in the U.S. decreased by about 13%. Again other things being equal, this means that the freshman class of 1990 could be expected to be 13% smaller than that of 1988. Of course other things rarely remain the same and taking some additional factors into account, the Carnegie pro-

jection of higher education enrollment trends—a total increase of about 20% during the 1970's and a 9% decrease in the 1980's—is less dramatic. Still, it is clear that for the next 15 years or more the traditional 18-22 year old student is going to be an increasingly rare commodity in higher education.

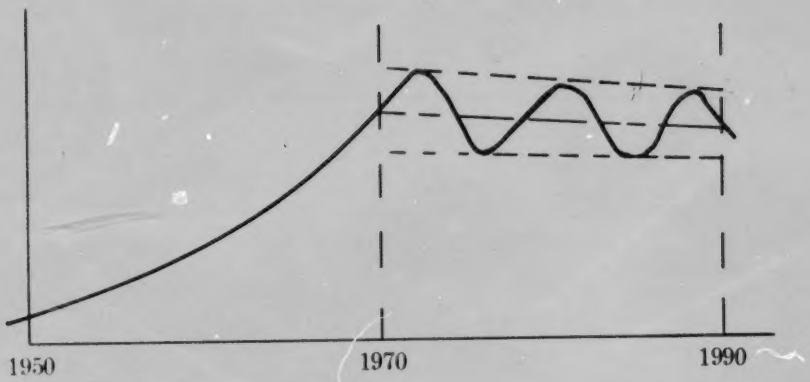
The other two major limits to growth of the U.S. higher education system are rising costs and limited or declining income. "Double digit" inflation in recent years has eaten through the fat in college and university budgets, into the muscle, and in many cases, right down to the bone. Meanwhile economic recession has depleted state and local treasuries as well as the stock market, decreasing income for both public and private higher education institutions. But as long as taxpayers continue to subsidize public colleges and universities—as they almost certainly will—the latter's chances of long-term survival are probably good. The situation is far more serious in the private sector. If existing economic conditions persist for several years—as I am nearly certain they will—the private sector of American higher education may be decimated if not wholly eradicated. The existing trend is certainly not encouraging. In 1950, 2/3 of American college and university students were enrolled in private institutions; by 1970 that proportion had been reduced to 1/3; and currently it is close to only 1/4. Daniel Moynihan observes that a 10% rate of inflation reduces a $1 billion endowment to $386 million in 10 years. Under such circumstances, Moynihan speculates, "by the 1990's private universities as they are now known could well have disappeared, been absorbed into state systems, or divested themselves of all but their few profitable operations."[5]

The Probable Future of U.S. Higher Education

Given the reality of at least 15 to 20 years of limits to growth, what does the most probable future of the U.S. higher education system look like? The term which has been popularly applied to this new era in higher education is "steady state." While this term is roughly correct, it masks many significant aspects of the economy of higher education during the next generation.

In my view, the most probable future of the higher education system can simply be represented by the graph on page 28.
The graph is an approximate representation of the probable trend in enrollment over the 20 year period from 1970 to 1990. Enrollment can probably be taken as a proxy for other parameters of the higher education system, *e.g.*, income (deflated), number of institutions, number of faculty and staff, etc

The graph projects an *average* steady state around a slow secular decline. But it is marked by sizeable oscillations within the bounds of



a fairly broad envelope. This graphical representation is greatly simplified. Actually the wide fluctuations which I suggest will characterize the future of U.S. higher education in the next one to two decades will exist not so much for the system as a whole but, more significantly, these oscillations will occur within state and local higher education systems, within both multi-campus and single-campus institutions, and within academic fields; all with varying periods and intensities. That the envelope of these oscillations is depicted as narrowing somewhat in the future is to suggest that as time goes by higher education management may develop mechanisms for damping these fluctuations. This may be an optimistic assumption. Indeed, a number of potential "system breaks" could make the future of the higher education system far more chaotic than what this graph suggests. On the other hand, the point of the graph is that the future of higher education is likely to be a good deal more dynamic than what the term "steady state" may imply.

This fairly simple dynamic analysis is based on a mental model of the future of the world and U.S. economies derived from work on limits to growth by Forrester, Meadows, Georgescu-Roegen, Daly, Schumacher, Henderson and others. A similar mental model is provided impressively by Alvin Toffler's recent book, **The Eco-Spasm Report.**[6] In Toffler's vision, the "eco-spastic" economy—the kind of economy the U.S. and most other nations have now entered—is characterized by both inflation and stagnation, high unemployment and labor shortages, cancerous urban growth and grinding urban decay, etc., all occurring at the same time in different places, or in the same place at different times. The effect of this eco-spastic economy on the U.S. higher education system will be rapid fluctuation in the various demands and constraints experienced by various parts of the system, coupled with multi-year delays between causes

(employment opportunities, financial cycles, academic "fashion" cycles, etc.) and effects (changes in enrollment, changes in curriculum, changes in "hard" and "soft" resources, changes in faculty composition, etc.). The result will be the kind of oscillatory "overshoot-undershoot" behavior depicted in the graph.

This overshoot-undershoot pattern is already detectable in the recent enrollment behavior in such higher education subsystems as medicine, law, engineering, and proprietary schools. I will venture to predict that within the near future, the same kind of overshoot and decline will be observed in the two-year community colleges, a set of higher education institutions that until the present has enjoyed steady and prodigious growth. This coming downturn in the two-year community colleges will be the product of the general economic conditions mentioned above, the saturation of highly localized enrollment markets, the demographic limits mentioned earlier, and a general disenchantment with the lure of so-called "career education."

The oscillatory, overshoot-undershoot pattern in U.S. higher education will persist as long as world and national leaders continue to marinate in eco-spastic policies. While we can hope and work for more competent leadership, even radical change at the top of government, business, and other institutions will not produce the social, political, economic, and psychological transformation to a post-industrial, post-eco-spasm world in less than a generation, and maybe not even in the span of a lifetime. The challenge such erratically fluctuating conditions pose for higher education institutional planning is evident. The most likely response to this challenge will be more contingency planning for alternative futures and a managerial slant towards low-risk, "minimax" solutions to long-range problems. As suggested in the graph, the success of purely economic, managerial initiatives in dealing with these conditions is likely to be marginal at best.

Confronted with this intimidating reality, many leaders of the higher education system are searching for loopholes. One popular response to the problem posed by limits to growth is to simply deny its existence. A number of articles in the recent literature on higher education take this approach and argue that the existing constraints on U.S. higher education are only temporary, soon to be relieved by the return of the regime of exponential growth. In my opinion, this view can best be characterized as "whistling in the dark."

Other pilots of the higher education enterprise are emulating the tack taken by the captains of such industrial firms as Lockheed and Penn Central and are looking toward the Federal Government —Santa Claus—for relief. Specifically, it is argued that a simple

alteration of national spending priorities—that is, giving higher education a bigger slice of the national budget—could alleviate the limits to growth that currently exist in higher education.[7] In the short term this might be so, and there are certainly legitimate arguments in favor of allocating a larger amount of government funds to education and research, especially in light of the astronomical amounts that are wasted on weapons and so-called "defense."

However, we must recognize, first, that federal expenditures on higher education have increased steadily and substantially for 20 years; that an increase in federal spending on higher education from a little over $5 billion in 1970 to slightly less than $9 billion in 1975 did not even keep up with the rate of inflation; and that the political reality is that a major increase in federal support for higher education in the near future is highly unlikely. Second, and more important, we should realize that such a solution would only postpone, and probably amplify, the crisis American higher education is facing in the next few years. As noted earlier, the national economy is now running into its own limits to growth, and will simply not enjoy the prolonged and rapid growth of the past 30 years during the next two generations. Indeed, recurring periods of serious economic instability and decline are foreseeable, and if national leadership continues at its current level of incompetency, these may be critical or even disastrous in proportion. Therefore, even a substantially larger relative share of such an eco-spastic economy will not return the U.S. higher education system to its now terminated "golden age" of monotonic exponential growth.

The Academic Revolution

In a book entitled **The Academic Revolution**[8] published in 1968, Christopher Jencks and David Riesman presented a widely read and well respected analysis of the evolution of the modern American higher education system. Their thesis is worth summarizing here, since it provides a useful framework for interpreting the evolutionary significance of the events shaping higher education in the U.S. during the next two decades.

From the early days of the American colonies through the nineteenth century in the U.S., colleges were formed mainly as special interest institutions, serving the parochial needs of social, political, economic, or religious subcultures. Often these institutions were started by a single charismatic individual and almost always derived their logistical support from the particular subculture to which they catered. The college president, in collaboration with the donors and trustees, dominated the character and guidance

of the institution. The still largely unprofessionalized faculty exercised little power in institutional affairs. And colleges themselves played a relatively minor role in the life of American society.

The last half of the nineteenth and first half of the twentieth centuries saw the "take-off" of the modern industrial revolution in the U.S. This revolution was not merely technological but also a revolution in social theory and organizational structure, leading eventually to the rise of the Industrial or the Corporate State. The modern industrial revolution has been characterized by a "nationalization" (by this I mean not governmental expropriation but a process of nation-wide diffusion and integration) and heterogenization of previously parochial, homogeneous institutions, including the traditional colleges. A major result of the modern industrial revolution was the rise of Michael Young's "meritocracy," in which a non-functional class structure based on parochial *origin* was replaced by a functional class structure based on *competence*, *interest*, and *achievement*.

The rise of the meritocratic Industrial State both facilitated and demanded what Jencks and Riesman called the "academic revolution," whose central characteristic was the rise of the modern university. By World War I there were two dozen "major" universities in the U.S. and these, with a few additions, have dominated American higher education right up to the present.

The major consequences of the academic revolution for American higher education are the following:

—Faculty have become professionalized to the point of establishing what Jencks and Riesman called the "academic profession." To a large extent this was made possible by the growth and nationalization of resources for scholarly activity.

—By the turn of the century most of the existing academic disciplines had been established. The discipline-based department has since become the principal unit of academic administration.

—The faculty as a body has become ("de facto" if not "de jure") the preeminent power in institutional governance, relegating the president and trustees to a secondary, or even tertiary, role.

—Faculty have become predominantly involved in scholarly research and disciplinary advancement, and correspondingly less concerned with the education of the young.

—Graduate professional training has become the major goal of undergraduate education and, concomitantly, what Jencks and Riesman called the "university college" has become the dominant model for undergraduate institutions.

—In general, higher education has become "a major growth industry, consuming about 2 percent of GNP, directly touching the lives of perhaps 4 percent of the population, and exercising an indirect influence on the whole of society."[9]

In the view of Jencks and Riesman, the major impact of the aca-

demic revolution on undergraduate education has occurred mainly since the late 1950's. Until that time, the rise of the university had fairly little effect on undergraduate education. Since then the university college has become *the* dominant model for undergraduate education in the U.S. The primary purpose of such an undergraduate institution is "to prepare students for graduate work of some kind"[10] and for ultimate entry into the academic profession. While only about 5% of undergraduate institutions have fit this description fully, it has defined the goals and standards of excellence for almost all. Two-year community colleges have become four-year institutions. Private and state teacher's colleges, and state land-grant ("A and M") colleges have sought to "upgrade" themselves into "liberal arts" institutions. And public and private four-year colleges have worked to develop into universities. The power of the lure of the university college model is further evidenced by the fact that in many cases these transformations, from two-year to four-year college, from special-purpose to liberal arts college, or from college to university, have been cosmetic, often involving a change in name only.

A review of the thesis of Jencks and Riesman brings out a particularly relevant fact: The roots of the academic revolution in American higher education were in *growth*. Rapid economic expansion and population growth were the foundation blocks on which the edifice of the academic revolution was erected.

First, the *purpose* of the academic revolution was to serve the needs of the growth-based Industrial State. The effects of the academic revolution were: to make colleges and universities "more useful to other established national institutions"; to "make higher education look like a fairly effective instrument for meritocratic sorting and grading of the future employees"; and to "help promote and disseminate values and skills useful in the maintenance of the established institutions."[11]

Second, exponential industrial and population growth made the academic revolution *possible*. The rise of the university was financed by the growth and nationalization of capital. The early development of the university college in the 1920's and 1930's was accelerated by "unprecedented growth in enrollment."[12] And its ascendancy to dominance since the late 1950's was made possible by both prodigious economic growth and explosive growth in enrollments. Economic growth endowed scholars with unprecedented resources for the pursuit of their work. This increased both the economic and social status of the academic profession, making it the career most sought-after by undergraduate students. Great resources also served to strengthen the power of the faculty. At the same time, enormous growth in the student population allowed

selectivity to dominate expansion in enrollment, giving prestigious institutions the "pick of the crop" and guaranteeing the dominance of the academic meritocracy.

In short, growth made the academic revolution possible in much the same way it made the modern industrial revolution possible: by resolving conflicts through the mechanism of the ever-expanding pie. As Jencks and Riesman put it in a telling, *parenthetical* remark: "It is always easier to redistribute resources and power in periods of growth, because the progressives can be given more without the stand-patters appearing to get less."[13]

So intimately was the academic revolution tied to the growth-based modern industrial revolution that the university and its "farm" organization, the university college, came to mirror the corporate organizational structure of the Industrial State in the process of serving it. The form of the university became increasingly analogous to the conglomerate corporation, as in both the concept and reality of Clark Kerr's "multiversity."

The Second Academic Revolution

Within the framework provided by Jencks and Riesman, it is evident that the scenario of the U.S. higher education system's future I offered earlier implies drastic erosion of the academic revolution's base. Limits to growth set the stage for a second academic revolution within the next generation, inevitably leading to a radical transformation of the American higher education system. How the second academic revolution will proceed and what its ultimate outcome will be remain uncertain, depending greatly on the choices made now and in the immediate future by those concerned with higher education's governance. But the process of change will not be the same as the first academic revolution. Nor is the outcome of the second academic revolution likely to be what is generally desired or anticipated in many quarters of today's higher education system.

To begin with, the outcome of the second academic revolution is unlikely to see the survival of the established liberal education model epitomized by the university college as a central feature of the higher education system. Graduate professional education and the university college which have served as its "West Point" simply cannot expect a future role as dominant in scope as that of the recent past. The immediate reason is a direct consequence of the limits to growth of higher education. Namely, the academic profession which modern liberal education evolved primarily to serve is now on the verge of bankruptcy.

John Kemeny, the president of Dartmouth College, has done some illuminating calculations showing the future of the academic

profession as increasingly a Hobson's choice between "tenuring in" and a high rate of "mortality."[14] Assume that it is desirable for junior faculty in a conventional college or university to have a better than even, say 55%, chance of ultimately achieving tenure. Kemeny demonstrates that in equilibrium (that is, once fluctuations produced by changes in the rate of growth are "damped out"), under conditions of rapid institutional growth (5% per year), 50% of an institution's faculty will be on tenure; under slow growth (2% per year), the proportion of tenured faculty increases to 60%; and under zero growth, about 68% or 2/3 of the faculty would be tenured. Extrapolating from Kemeny's figures, under the conditions of actual *decline* that will probably exist for many if not most higher education institutions in the next decade, the proportion of tenured faculty could go as high as 3/4 or even higher, especially in light of the fact that the system is not "in equilibrium," having recently acquired a disproportionately large number of *young* tenured faculty members.

In other words, under the assumption of a 55% probability of junior faculty achieving tenure, only about 1/4 of existing faculty jobs could be expected to be open to new prospective entrants into the academic profession during the next one to two decades. Or, assuming the continuation of the now standard policy of giving junior faculty members six or seven probationary years before either receiving tenure or being dismissed from the institution, less than 4% of existing faculty positions would be open to new Ph.D.'s entering the academic profession each year. If the academic profession in the U.S. continued to number about 500,000 members, this would mean that it could not absorb more than about 20,000 new Ph.D.'s per year, which is slightly more than half the number currently being produced, and less than half the number projected to be produced in 1984. Another way of looking at this is that if supply equalled demand, on average each faculty member would be producing one Ph.D. per 25 years of academic service.

But, it may be argued, a tenure ratio of 2/3 to 3/4 of all faculty is clearly so undesirable that surely institutions would take steps to prevent becoming so "tenured in." However, assuming that rules were promulgated limiting the proportion of faculty on tenure in a given institution to not more than 60%, Kemeny's calculations indicate that junior faculty would stand less than a 40% chance of achieving tenure under conditions of zero growth. Under the more probable conditions of slow "negative growth," I estimate that the odds against a junior faculty member winning tenure would be about 2 to 1. This by itself would make the academic profession a far less attractive career option than it has been to date. The situation is exacerbated by the fact that the individual

equipped with a liberal education who cannot find a position in the academic profession has extremely few alternative career options at anywhere near the same socioeconomic level. The credentials provided by the university college and its emulators simply have little currency in the existing and projected American job market. James O'Toole has pointed out that by 1980, 25% of working Americans will have a college degree, while only about 20% of all jobs will require a college education. The estimate of the Bureau of Labor Statistics is that by 1980 there will be a 140,000 per year "surplus" of college graduates.[15]

Under either of the above sets of assumptions, therefore, the academic profession becomes an increasingly "high risk" career option from the viewpoint of students; "high risk" both in the sense that the achievement of secure entry into the academic profession is highly improbable, and in the sense that failure to achieve such entry carries an increasingly high cost (both direct cost and opportunity cost). As students become more aware of these facts, the attractiveness of the academic profession as a career option must decline proportionately. But this, in turn, creates a "positive feedback loop" that makes the whole theorem even more dismal than what already has been stated. For as the attractiveness of the academic profession as a career declines, so too must the student demand for the liberal education whose overwhelming purpose and value is the training of academic professionals. And that must tend to decrease enrollment even more, leading to even more rapid "negative growth" of universities and colleges, producing even more pervasive entrenchment of the academic profession, and so on; inevitably driving the whole system toward some kind of collapse. In short, liberal education as epitomized in the university college has little long-term future in the U.S. except as a luxury for the most affluent.

Nor do I see much likelihood of the resurrection in the future of the pre-academic-revolution "liberal arts" tradition as a central feature of U.S. higher education. To say that traditional knowledge is totally irrelevant to the problems of today and tomorrow would be unfair. But to argue as Hutchins and the neo-traditionalists have, that the ancients had a virtual monopoly on valuable knowledge, is fabulously naive and ultimately stultifying. This view grossly disregards the enormous expansion of human knowledge and the evolutionary transformation of planetary civilization in modern times. How much could Aristotle really have to say relevant to nuclear safeguards, the Nixon tapes, or the destruction of the ozonosphere by spray deodorants? About 90% of all the scientists who ever lived are alive today. Is it logical to assume then that only the dead wrote "great books"?

On the other hand, the *ideal* of the liberal arts tradition—the creation of effective, self-reliant *learners*, endowed with habits of thought and action appropriate for competent societal leadership —has always been, and will continue to be, meritorious. But the traditional liberal arts system was never consciously or scientifically designed to do this, and in fact did it poorly at best; at worst not at all. Indeed, the current "problèmatique humaine" can be blamed to some extent on the failure of traditional education effectively to realize this ideal. That many of the graduates of the traditional liberal arts schools and colleges seem historically to have achieved great things in Western society probably says more about the sociology of those institutions than about the quality of their curricula.

Given the growing unattractiveness of a higher education attuned mainly to training for the academic profession, and the irrelevancy of much that is offered under the rubric of the "liberal arts tradition," a shift in the allocation of higher education enrollments is hardly surprising. As is well known to observers of the higher education scene, students in recent years increasingly have been attracted to vocational and technical training in two-year community colleges and proprietary schools. The same trend is represented in the upper levels of higher education by a growing proportion of students pursuing the "practical" professions; *e.g.*, medicine, law, engineering, business, etc. In the demographic and economic conditions that exist in the U.S. today, this attempt to find a better return on investment in higher education is quite logical. Yet I believe the promise of so-called "career education" will soon be found false for most students, and the trend in this direction will turn out to be a cul-de-sac.

Defaults on government-insured student loans are now epidemic in the U.S., the result mainly of the failure of proprietary institutions to meet the vocational expectations of students. One can only wonder how long it will be before the same phenomenon occurs in non-profit community colleges and vocational/technical schools. The latter make the same kinds of promises as the proprietary institutions that hold out education as the key to economic security and advancement, and ultimately they will not be able to keep such promises either. This is true of career education generally. In an eco-spastic economy, no amount or kind of education will carry a significant guarantee of economic security or even economic benefit (net return on investment).

Career education cannot work. First, because there will not and cannot be enough economic growth in the U.S. in the future to absorb a labor force rapidly growing as a result not only of the baby boom but also of the increased desire of women to work, and of the just aspiration of minorities previously excluded from the

economy or consigned to its fringes to enjoy a more central role. And career education cannot work, second, because rapid change —Toffler's "future shock"—will make the period of obsolescence of most existing careers shorter than the working lifetime (40 to 50 years) of a worker. Indeed, the educational programs which purport to train people for many careers will last longer than the careers themselves.

Towards an Ecological Education

This discussion has focused so far mainly on the impact of Toffler's "eco-spasm" on the future economy of American higher education. But there is another side of the story which now needs to be considered, centering on higher education's *responsibility* in a world undergoing the throes of an ecological crisis.

The solution of the global ecological crisis requires the creation of a sustainable state of planetary, social/ecological equilibrium, generally requiring an end to human population growth, and an end to what Herman Daly[16] calls "growthmania" economies of both Marx and Keynes. Many possible alternative futures could satisfy these requirements. But the futures emerging from current world policies could not. The process of achieving a state of sustainable equilibrium is therefore not incremental transition—"muddling through"—but must be a radical transformation of the structure, theory, and technology of established society.

In the transformation from ecological crisis to equilibrium, education has a central role to play, since such radical change clearly requires *learning*. Because the urgency of the planetary crisis demands that transformation begin immediately, the task of learning cannot be left to children. The priority focus must be on adults. Thus the burden for what Donald Michael[17] calls "future responsive societal learning" falls most heavily on education at the post-secondary level. Yet conventional higher education has little experience or competency in the learning required for planetary transformation. Neither its espoused goals nor its processes are appropriate. If it is assumed therefore that one is talking about the conventional model, the suggestion that "education" holds the key to planetary survival, welfare, and development sounds naive.

To get around this problem, since 1972 I have used the term "ecological education" as a label for an alternative model of education explicitly dedicated to the creation of sustainable global futures, and embracing processes appropriate for transformation to a new world order. The philosophy of ecological education begins in the recognition that a major challenge the ecological crisis poses for education is to cultivate a new, ecological consciousness, combining elements of occidental, oriental, and other more "primitive" modes of

thought, and respecting the complex connectedness of individual, society, and environment. This is a challenge conventional education is inherently ill-suited to meet. We need a new, ecological conception of education which differs from conventional education in terms of both goals and processes.

Where conventional education is oriented toward the past and maintenance of the *status quo*, ecological education must be directed toward the future and adaptive change. Where the objectives of conventional education are treated as having intrinsic or narrowly economic value, the objectives of ecological education are rationalized in terms of planetary survival, welfare, and development. Where conventional education is restricted to a narrowly-defined function of the social order, ecological education must embrace the full spectrum of communication, control and learning processes that govern our world social/ecological system.

The redefinition of educational goals must be symbolized by a new model of the "educated person." The historical models of the educated person, whether the Renaissance man or the academic specialist, that so far have epitomized the goals of higher education, are simply inapplicable to the contemporary human and planetary condition. The needed new model of the educated person will have two general bases. One is a new image of the place of humanity in a complex, global ecological system. As a recent report from the Stanford Research Institute put it, "the increasingly serious dilemmas of industrialized society appear to require for their resolution a drastically changed image of man-on-earth."[18] The second is a new standard of competence in both leadership and general citizenship. The conventional wisdom dominating our social, political, and economic institutions is grossly incompetent to deal with the challenges of limits to growth and transformation to equilibrium.

The educated person capable of leading the transformation of dynamically conservative social systems from a state of crisis to one of equilibrium can be called a "transformer." While we do not yet have complete knowledge of all that a transformer must do and know, enough of a pool of knowledge and skill exists for us to begin putting together the pieces of an "adequate" ecological education to produce in the immediate future at least a *more*-educated leadership and public.

A curriculum for ecological education should have six essential characteristics. First, it should be *multi-levelled*, cultivating learning not only at the simplest level, but at the higher levels of "learning-to-learn," and expansion of consciousness. Second, *interdisciplinary*, going beyond the cafeteria approach of a "multidisciplinary" grab-bag to a rigorous and intellectually sound synthesis effectively spanning disciplinary boundaries. Third, *problem-centered*, consciously

focusing on critical problems of planetary survival, welfare, and development. Fourth, *futures-oriented*, applying the increasingly sophisticated tools of futuristics to the imagination, design, and implementation of alternative, sustainable futures. Fifth, *global*, eschewing parochialism and chauvinism, and making its primary concern the condition of the planet as a whole. And finally, it should be *humanistic*, cultivating the full intellectual, emotional, physical, and spiritual development of the whole human being.

Equal in importance to the curriculum of ecological education is the process through which the curriculum is implemented. While the process of an adequate ecological education could have many characteristics, a few key ones can be mentioned here. The process should stress utility both to the individual and the society. The process should be enjoyable, engaging participation through positive reinforcement, and unleashing creativity, imagination, and excitement. The settings of ecological education should be both experimental and experiential in nature, emphasizing the creation and evolution of comprehensive social/ecological alternatives. Generally, and perhaps most important, the social and physical structure of the setting of ecological education should be as consistent as possible with the content and philosophy of the curriculum.

In 1974 I directed a research project at the Western Interstate Commission for Higher Education with support from the Rockefeller Brothers Fund, one of whose goals was to assess the response of higher education as a system to the challenge of ecological crisis. The conclusion of this study was not encouraging.

On the positive side, at least since 1970 and the first Earth Day, there has been growing interest on college and university campuses in the problems of growth and equilibrium. A sizeable number of courses and programs have developed focusing on such problem areas as environment, population, resources, urbanization, technology, and the changing role of women, as well as in broader interdisciplinary areas such as futuristics and systems science. But in an American higher education system of some 3,000 institutions, half a million faculty, and nine million students, the total scope of such efforts is relatively miniscule. Probably fewer than 5% of U.S. higher education institutions meaningfully can be called "innovative," and of these only a few are pursuing innovation along lines consistent with the criteria of ecological education. In an admittedly incomplete but still broad survey, we discovered not a single academic program satisfying all of the criteria of an adequate ecological education.

The efforts of the several hundred people in American higher education who have worked on creating courses and programs at least approaching the needs of ecological education are meritorious. Yet

these efforts for the most part have been small in scale, disjointed, inefficiently duplicative, often parochial, and sometimes of poor quality. The absence of an established center or full-time facilitator working to integrate and upgrade these efforts has hampered communication and the sharing of experience and resources. The lack of organization may also account for the pitifully small support existing efforts in ecological education receive from institutions and funding agencies.

As I said earlier, it is impossible to predict the course or outcome of the second academic revolution since these will depend on choices made in the near future by those involved with the governance of American higher education. So I would not presume to say that ecological education *will* be the outcome of the second academic revolution. I will venture, however, to argue that ecological education *should* be the goal of the second academic revolution, for two basic reasons.

The first is that our society needs something like what I have called ecological education, and needs it especially at the postsecondary level. The problems posed by limits to growth will not go away until today's adult leaders and citizens come to grips with the necessity of transforming society to a state of demographic, economic, and environmental equilibrium. The only alternative to such a conscious transformation is the blind transformation that Malthusian mechanisms of misery, violence, disorder, and death will impose by default. Many people have now become conscious of this necessity; yet even as they have, it has become clear that we generally lack the knowledge and skill required to carry out the radical transformation of our society peacefully, justly, and effectively. Witness the two years of impotent floundering that have constituted our government's attempt to formulate a national energy policy. Unless our higher education system adopts an active role in creating the consciousness and competence required for transformation from ecological crisis to global equilibrium, civilization's chances for survival will be on a par with the proverbial snowball in hell.

The second reason why ecological education should be the goal of the second academic revolution is that such a choice offers a significant hope that higher education of meaning and quality could survive, and even flourish, in the future. To say that ecological education is higher education's "last, best hope" would be presumptuous, if not hyperbolic. But to my knowledge, there is nothing else on the table that offers as much hope, if any, for higher education's future. For reasons stated earlier, the maintenance of the conventional liberal model, the neo-traditionalist resurrection of the liberal arts, and the greedy infatuation with career education are all dead ends. Higher education management systems may be of some value in

stable times but will not prove of decisive value under the turbulent conditions of the eco-spasm. To the extent that these techniques are rooted in assumptions shared with "growthmania" economics, they may serve to make matters worse. Admittedly, the theory and praxis of ecological education are very young and undeveloped. But the basic goal of ecological education is to be maximally useful to society in an epoch of millenial crisis and change. To the extent that higher education is responsible and useful to society during its hour of great need, it is logical to assume that the higher education system will be proportionately supported by society.

In the first academic revolution the economic system clearly led the higher education system. In the second academic revolution, the process of change must be different if it is to achieve a positive result, and the higher education system must take the responsibility of leading the economic system. To follow is to pursue crisis and to court disaster.

Whether higher education can accept the responsibility of leadership, and embrace radical change both for its own sake and the sake of society remains to be seen. Certainly the outcome of the academic reform movement of the turbulent 1960's is not encouraging.

According to Gerald Grant and David Riesman, the major and almost only significant academic reform emerging from the last decade is the student's greater freedom to design his own curriculum.[19] To what extent this is progressive and to what extent retrograde is debatable. Certainly it was desirable that students and faculty alike be liberated from the oppressive tendencies of the feudalistic, department-dominated academy. But while we should oppose the stultifying rigidities of the academic discipline-department, we must not reject academic "discipline" as a generic concept. Useful and responsible education cannot be achieved without some kind of discipline and demand for quality (a much-abused and confused term). In practice the alternative to the tortures of the Procrustean bed too often has been the impotent delirium of the lotus eater. It does not follow that the only alternative to education-for-vocation (whether academic or economic) is education-for-the-hell-of-it. A meaningful synthesis of discipline and flexibility is both possible and essential.

As students have become scarce, higher education institutions have become increasingly indulgent of the demands of students-as-consumers. Similarly, as dollars have become scarce, colleges and universities have become more pliant than ever to the parochial demands of special interests that can pay for their services (*e.g.*, the pending arrangement between the government of Iran and MIT's nuclear engineering department). But the rise of educational do-your-own-thing-manship and the economic prostitution of higher education should not be confused with responsibility and leadership.

An educational system which obsequiously tolerates the whims of students and the narrowest interests of society while failing to make an authoritative effort to serve long-range needs of both ultimately will lose the respect of students, parents, alumni, and the public and private benefactors of educational institutions.

The failure of colleges and universities to make a useful contribution to the solution of the ecological crisis could lead to the public discrediting of higher education, and even greater retrenchment and ossification of the system. And the larger result could be a vacuum that might well be filled by a new wave of anti-intellectualism, fanaticism, and demagoguery.

These potential failures and attendant dangers must be recognized. But a positive view of the second academic revolution is also possible. A substantial number of people in American higher education today are actively working to advance the system towards a model like that of ecological education. A number of institutions are resisting the pressures of retrenchment and are pursuing new horizons. The individuals involved in this innovative movement yet may turn out to be the vanguard of a new, ecologically-oriented, future-responsive academic revolution. If the mainstream of the higher education system chooses to support and build on their efforts, the goals of ecological education stand a good chance of being achieved.

Earlier I listed the major impacts of the first academic revolution on the U.S. higher education system. I would like now to present a parallel list to suggest the potential effects on the higher education system of a second academic revolution based on the model of ecological education. To a large extent this list is premature, the theory and methodology of ecological education still being in the early stages of their development. But I think it would be unfair to criticize existing trends in higher education without providing some alternative image.

The first academic revolution replaced the old parochialism of religious, ethnic, sexual, and geographical special interests with the new parochialism of disciplines and professions. The second academic revolution must transcend parochialism itself. The major outcome of the second academic revolution in this speculative projection is the replacement of the now-dominant multiversity-university by a more holistic, more truly "universal" institution. Exactly what this new institution looks like I cannot say, but the following are a few clues:

—There is a qualitative change in the nature of the academic profession. A greater premium (not just lip service but in the structure of rewards) is placed on the spanning of boundaries, both among professions and disciplines and between the "ivory tower" and the "real world." There are still academic specialists in chemistry, economics, history,

etc. But they are complemented by a substantial body of rigorous generalists, whose role currently is anticipated in the growing ranks of academic mavericks who go under such titles as "futurist," "environmentalist," "urbanologist," or "comparist." There is also a new group of professional "instructors" whose skills and roles are largely independent of any particular academic discipline or subject.

—The discipline-based department is no longer the main unit of academic administration, replaced by a matrix-like structure which balances interdisciplinary and disciplinary interests. The structure also has a "core," devoted to the cultivation of the competencies of the educated person as transformer.

—As long as faculty behave as a conservative force and obstacle to change, power flows away from the faculty as a body toward the administration and the outside constituencies of the institution. However, innovative faculty who build bridges to these other centers of power eventually take the lead in academic reform, resulting in the restoration of the faculty to prominent power in institutional governance.

—There is a growing distinction between research activist "faculty" and professional "instructors." The latter have major responsibility for instruction of students, young or old, although the former are used as a major resource in "learning environments."

—Training for the academic and other professions is a relatively minor part of higher education, and thus the university college is no longer a dominant model in the higher education system. The goals of higher education are mainly leadership, citizenship, and individual human development.

—Surprisingly perhaps, beyond the limits to growth higher education plays a larger and more central role in society than it does today. In the "post-industrial" society, learning and research are *the* major social enterprise, and education is organized on the "life-long" model.

The President as Educational Leader

In a recent television interview, Robert Hutchins declared: "If you don't care anything about education, university president is a great job."[20] Hutchins' comment is an accurate reflection on the role of the college and university president in the higher education system spawned by the first academic revolution. In the present system, the president is primarily an administrator, and the opportunities for leadership in the administrative role generally are confined to such tangibles as budgets, fund-raising, and buildings and grounds. Educationally, which is to say pedagogically, the president is typically a follower and a servant of the faculty. As Jencks and Riesman put it: "Most university presidents see their primary responsibility as 'making the world safe for academicians' . . . ."[21] The course of the second academic revolution now brewing will be influenced significantly by the extent to which this image of the president remains valid.

The second academic revolution poses three basic leadership

choices for college and university presidents. The first choice is what might be called the "null" choice. The president chooses, either consciously or by default, not to exercise leadership of any kind. The president continues to play the role of administrator and follower of the faculty, allowing the conservative inclinations of the faculty as a whole to dominate the guidance of the institution. Those presidents who follow such a course will find no future in it. In a time of inexorable change, doing nothing is not a real option: What is the conservative position on a sinking ship? Such "do-nothing" presidents will either go down with their institutions, or prior to that will be relieved of duty, not soon to find another command.

The second choice can be called the "Vince Lombardi" model of leadership. The president choosing this role is implicitly accepting an overshoot-and-collapse scenario of the future of higher education, and intensified dog-eat-dog competition for dollars and students. Institutional survival is the paramount goal and "winning" becomes the ultimate virtue. While in this role the president may promote some pedagogic change—probably finding career education an attractive ploy—the orientation of this kind of leadership is primarily economic. If the majority of higher education executives choose this strategy of leadership, the future of the system will be brutish and decadent. As in the National Football League, this mode of behavior will produce only a few winners and many losers. And the fruits of victory will prove comparably ephemeral. There is no future for higher education in this, if only because there is no future for our society in it.

The third, and only really acceptable option is for the president to accept the responsibility for genuine educational leadership. The direction I would like to see such leadership take—a second academic revolution pursuing the goals of ecological education—has been outlined above. Of all the roles in the higher education system, the presidency may be the most influential from which to promote the innovations that are needed. I do not pretend that this kind of leadership will be easy to perform, especially in light of the fact that the age of conflict resolution through growth is now over, at least for most institutions. Educational leadership will ultimately come down to problems of *redistribution* of power and resources, and these problems no doubt will prove as thorny in colleges and universities as they are within and between nations. Indeed, they may even seem more difficult for, as Paul Ylvisaker once said to me, "academic politics are the meanest politics."

Someone's ox is inevitably going to get gored. But that will happen anyway—is happening—under conditions of retrenchment. Educational leadership from the president actually could alleviate a great deal of unnecessary pain and bloodletting. Members of the

academic community should find it easier to accept the exigencies of change designed to be socially responsible, than the internecine sanctions of a lifeboat ethic. Nor need the president who accepts responsibility for educational leadership feel too intimidated by the prospect of the loneliness of command. There are faculty and students working stolidly to create an ecological education on campuses across this country who have yearned, generally in vain, for the active support of their college or university president. Presidents who exercise educational leadership will find support both within their institution and in the institution's environment.

I would like to conclude this discussion with a traditional tale from the Middle East, recorded and transmitted to us by Idries Shah. The story goes that a man saw Nasrudin searching for something on the ground. "What have you lost, Mulla?" he asked.

"My key," said the Mulla.

So the man went down on his knees too, and they both looked for it.

After a time, the other man asked: "Where exactly did you drop it?"

"In my own house."

"Then why are you looking here?"

"There is more light here than inside my house."[22]

There are few concerned with American higher education today who do not recognize that it is in a growing state of crisis. Yet like the incomparable Mulla Nasrudin, most of the leaders of the higher education system have been looking for solutions to the crisis in places where it may be easiest and most convenient to look, but not in the place where the roots of the crisis are located. Those who wish to be true educational leaders will have to go back inside the academic edifice, examine its foundations, and be prepared to take it apart and put it back together if they want to find the key to a hopeful future.

FOOTNOTES

[1]Edward B. Fiske, "College President: More Things to More People," The New York **Times**, July 27, 1975.

[2]Jay W. Forrester, **World Dynamics**, Cambridge, MA: Wright-Allen Press, 1971.

[3]Donella H. Meadows, Dennis L. Meadows, Jorgen Randers, and William H. Behrens III, **The Limits to Growth**, New York: Universe Books, 1972.

[4]The U.S. fertility rate finally began to decline around 1960, but took more than a decade to get down to the "replacement" level. Even at this level, U.S. population will continue to grow for about 70 years.

[5]Daniel P. Moynihan, "The Politics of Higher Education," **Daedalus**, Winter 1975, (**American Higher Education: Toward an Uncertain Future**, Volume II), p. 143.

[6]Alvin Toffler, **The Eco-Spasm Report**, New York: Bantam, 1975.

[7]John Hope Franklin, "On the 'Oversupply' of Graduate Students," **Daedalus,** Fall 1974 (**American Higher Education: Toward an Uncertain Future,** Volume I), p. 267.

[8]Christopher Jencks and David Riesman, **The Academic Revolution,** Garden City, New York: Anchor Books, 1969.

[9]*Ibid.*, p. 13.

[10]*Ibid.*, p. 24.

[11]*Ibid.*, p. 26.

[12]*Ibid.*, p. 21.

[13]*Loc. cit.*, p. 21.

[14]John G. Kemeny, "The University in Steady State," **Daedalus,** Winter 1975, (**American Higher Education: Toward an Uncertain Future,** Volume II), pp. 89-91.

[15]**Footnotes to the Future,** V. 6, June 1975.

[16]Herman E. Daly, **Toward a Steady State Economy,** San Francisco: Freeman, 1973.

[17]Donald N. Michael, **On Learning to Plan and Planning to Learn,** San Francisco: Jossey-Bass, 1973.

[18]O. W. Markley, *et al.*, **Changing Images of Man,** Policy Research Report 4, Menlo Park, CA: Stanford Research Institute, May 1974.

[19]Gerald Grant and David Riesman, "An Ecology of Academic Reform," **Daedalus,** Winter 1975, (**American Higher Education: Toward an Uncertain Future,** Volume II), p. 166.

[20]**Conversations with Eric Sevareid,** CBS-TV, August 31, 1975.

[21]Jencks and Riesman, *op. cit.*, p. 17.

[22]Idries Shah, **The Exploits of the Incomparable Mulla Nasrudin,** New York: E. P. Dutton, 1972, pp. 26-27.

The author wishes to acknowledge the editorial assistance of Gerda Whitney and Nancy Barber.

PLANNING AS A TOTAL PROCESS A SYSTEMIC VIEW OF COLLEGE MANAGEMENT

W. Patrick Dolan

For the first half of the twentieth century the American college was much easier to manage than it is today. It was sufficient to use a political model of the college, and rely on charismatic leadership and small group dynamics. The institution, however, has become much more complex in recent years, bringing with it more demanding management problems and the need for more sophisticated theoretical models, personal styles, and broader philosophies to integrate the growing diversity. The growing complexity of funding, the tightening of the student market, the political and value diversity in the external society, collective bargaining, increasing costs—all of these have helped to contribute to an exceedingly complex set of management problems that now confront the American college.

At the same time, we have seen significant growth in the availability and application of at least the analytical management tools that have been available to private enterprise for some time. We are seeing market projections, analysis of costs per course, budget projections, and some systemic planning. Two things have become increasingly clear in this process. First, although the new data gives one increasingly substantial, rational analysis, it still must be moved through an extremely political model of an institution, perhaps more polarized than ever before, since the academic profession itself is undergoing some rather deep and significant changes. And second, the growing complexity and interdependency of both the internal and the external variables of such an institution are demanding new ways of integrating functions of the American college into a holistic system. It is around these changes and needs that this paper will engage in a discussion of general systems theory.

The application of general systems theory to the realm of social organization is surely not a new phenomenon. However, it has two things to recommend it strongly at the present time. Coming as it does after three decades of development of strongly analytical approaches to management with the accompanying tendency to break down information into small bits, and follow a single variant analysis, there is a great deal to be said for an approach that brings with it a view of an organization as a complex, adaptive system, and that concentrates on the holistic interrelationship of the different parts. The new model also seems better able to deal with features in a complex society that other, self-contained structural/functional approaches cannot—for instance, conflict, deviance, power, collective

bargaining, and at times rather significant social change.

The origin of the basic notion of "system" lies somewhere in our fundamental observation of the relationships of parts within a larger whole. This is accompanied by a notion of a common goal, a purposeful action, towards which the interrelationship of the parts point. In terms of the scientific background of the concept, it emerges from the change from a physical approach to properties and qualities, to a central focus on the principles of organization *per se*. There is a movement from a crude mechanistic analysis of parts and their functions to an attempt to view the general properties of the *interrelationships* of the parts to the whole, and the *flow of energy* (or "information") between these parts.

In complex business enterprises over the last 20 or 30 years the burgeoning analytical approach and its technology has given us a process to create vast numbers of separate parts or items of information, the result of whose interactions no one can predict. It has become a way of taking a system apart so that it becomes increasingly difficult to put it back together, let alone understand or predict its behavior from that process. What is increasingly needed is not a static approach to a complex institution such as a university, but one that can explain the changes that have occurred over a period of time so that its present state is characterized more by the experiences that it has undergone with its environment than by its initial structure. That would seem to be especially true of the American college or university today.

The aim of this paper is to enumerate, as briefly and succinctly as possible, some of the main components of general systems theory, and begin to open up some discussion of its application to a modern college or university, and the way in which it is managed. We will look at:

—The formation of a system itself and the purposeful hierarchy that results.

—The process of "bounding" a system to preserve the integrity of life of the institution.

—The existence of the specific translation mechanisms at the boundary that perform the basic interchange between the system and the environment.

—The process of coding and decoding that occurs in this exchange.

—The process of feedback that is characteristic of such systems.

—The basic distinction between an "open" and a "closed" system with special attention to the qualities of "learning" possessed by an open system.

—Finally, there will be a beginning discussion of the college as a learning system with the elements of differentiation and integration within and the process of management or movement of ideas throughout such a system, especially from the periphery to the center.

To begin with, the use of such language as "system" as it applies to social organization is obviously analogous. It is, broadly speaking, a metaphor as is most of our theory. However, the basic notion is fairly clear: The system is the *organization* of components into interdependent relationships. Again, since system is an analogous notion even in its beginning application to organic life, the question of integration into a system is one of degree. There is, of course, a minimal amount of organization beneath which one has nothing but an aggregation of parts. But the distinction is hazy and not significant for our consideration. What is significant are the typical criteria for judging the degree of organization or "systemness." In addition to the rather obvious but critical question about the *common purpose* of the parts are the amount of *resistance* to intrusion of external energy, matter, etc. and the *rate of internal diffusion* or communication of information within the common boundaries.

The nature of the interrelationship of the parts defines the nature of the system itself. The interrelationship among components of a mechanical system, for instance, is a function primarily of spatial and temporal considerations and the flow of energy from one component to another. However, the interrelations that characterize higher level systems come to depend more and more on the *transmission of information*. One can see this in a highly sophisticated form, for instance, when viewing man as an organic system. There are spatial considerations and transmission of energy taking place, but there is an even higher level of organization which allows the transmission of extremely sophisticated information from, for instance, the digestive tract to the nervous system or the blood system. Quite often in the process of transmitting information, the basic structure of the system remains the same; and yet the energy or information may change quite drastically, for instance, in the body's ability to change chemical into electrical stimuli. The information has the power to trigger activity or behavior in many components of a system towards extremely sophisticated and purposeful ends. For instance, the amount of information contained in the molecular arrangement of the genetic code substance, DNA, is only now being unravelled. And yet this information can trigger one of the most complex interactions between different physiological and chemical components. The end result produced by such information depends almost solely on complex interrelationships of the components of the entire system. It is their relationship that codes and decodes the information and makes it useful in the right time, place and relationship. Both the sender and the multiple receivers of this information are clearly linked in a goal-directed and self-adaptive system. The *communication* of this system, then, internally depends on not only the components but the lines of energy flow between them. *And it is this organization that*

ultimately defines the system.

The distinction between an *open* and a *closed* system becomes valuable at this point. The closed system is for the most part impermeable at its boundary to any influence from without. The best definition of a closed system then is a system without an environment. An operational definition of an "open" system is one that not only engages in exchanges with the environment, but that this interchange is an essential factor underlying the system's viability. The environment, for an open system, is as basic to its life as the internal organic system itself. The typical response of a natural closed system to any intrusion of external events is a loss of organization or a change in direction. On the other hand, the open system is constantly affected by the external environment, so much so that internal structures adapt to meet the new external stimuli. This often results in a higher and more complex level of organization.

However, the interchange between the system and the environment is not a totally open process by any means. To use the extended metaphor, the "boundary" of the system in question is not either completely impermeable or open, but has special structures through which the information from the environment flows. The interchange, then, does not long remain random or unstructured, but rather becomes selective, due to mapping or coding capabilities of the boundary structures. For instance, when the fetus moves from the mother's life-sustaining system in terms of blood, oxygen, and so forth, several rather drastic adaptations must occur almost immediately. The fetal heart becomes the primary pump mechanism for the blood, the lungs become a new source of oxygen, the digestive tract becomes a new source of energy, and so forth. These are structures in place and ready to begin the translation or decoding from the external environment into the system that transforms into usable information-energy what they take from the external environment in the process itself.

Once again the question of an "open" system is a matter of degree. Any system, in order to retain its identity and cohesiveness, needs to keep itself bounded and internally organized. This will mean that there will always be resistance to any strong external stimuli. One is led, then, to the paradox that for any open system, the environment represents both a system of constraints, and at the same time a source of energy and new life. Within a closed system, or a relatively closed system, energy is being exchanged only *within* the system. Because of the closedness of the system, energy will continue to flow down any energy gradient, and in the process increase the uniformity of the energy distribution within a closed system. The process is known as *entropy*, and when energy within a closed system is distributed equally throughout the system, all capacity to do work ceases, because all energy flow has stopped. The open system, on

the other hand, in the ongoing interchange with the environment is not only able to maintain its basic energy source but is also able to increase it. However, neither one of these explanations, even applied analogously, seem to be totally correct, not only in the application to social systems of a complex nature but even to the prime analogate of the biological organism. For at the same time that an open system is able to increase its energy and its complexity of structure, and therefore aid in its own development in the exchange with the environment, there is an ongoing entropic process which leads to eventual decay. That is, it takes physical work to encode, process, and decode information. Some of the work performed by a persistently open system must therefore go to develop and operate its own information processing subsystems.

In the interchange of energy between an open system and its environment, not only can it be viewed as a source of new information and therefore growth, but it can also be viewed as a set of limitations or mutual constraints. In a recent article, Clifton Conrad views the university as a complex system, and the university's environment as a series of major constraints that define what is done, how it is done, and the expected consequences vis-a-vis the goals of the system (*i.e.*, the university).[1]

Conrad's analysis builds upon the elements of general systems theory just mentioned. He focuses on the interface between the university and its major constraints, for it is there that he finds the source of interaction, and therefore, of energy and information. He describes the internal constraint of the university as its "Internal Beliefs." Conrad's list of eight critical external constraints are the board of trustees of the university, the state government, the federal government, student clients, the public, competing organizations, university clients, and technology. Whether or not one agrees with his total list, his point about the interaction of the college or university with the critical components of its external environment and the *definition of its goals in the process* are very interesting. His view of the result of this interaction is the following:

> To summarize, the operative goals of the University emerge out of the daily decisions, made by a wide variety of individuals, concerning what is to be done and how it is to be done. These decisions mark a continual adaptation of a variety of external and internal restraints. The stability of functions in the University comes from the relative stability of each of the constraints and the relative stability of the importance of each with respect to the others.[2]

---

[1] "University Goals: An Operative Approach," **The Journal of Higher Education,** Volume XLV, No. 7 (October, 1974).

[2] *Ibid.*, p. 512.

Several rather interesting questions arise from this type of analysis. First of all, in this kind of theory institutional goals cannot remain a list of static statements, uninfluenced by the environment. Goals are viewed in this theory as being continually adapted, not only to internal but also to the external constraints—that is, not only to the institutional beliefs, and institutional structures, but to the changes in the critical components in the environment, *i.e.*, changes in the attitudes about education; changes in parallel institutions such as community colleges or proprietary schools; changes in federal and state legislation, and so forth. However, for our consideration here, there is a broader question which is that of management planning and governance. If the goals of the university are truly in a constant state of definition based upon decisions made daily by the key managers as the college interacts with its complex environment, then we need a deeper understanding of the structures and influences within the university, *e.g.*, administrators, structural entities such as academic departments, public relations offices, and most important, value systems and beliefs. All these influence the flow of information back and forth, and therefore influence greatly how resources are used and the direction in which an institution ultimately proceeds.

Again, the analogous use of the term "interface" to describe a "place where" all interaction between the inner environment or subsystems of the college or university and the external components of the environment, can be helpful if not taken too literally. We have seen that the structure of the internal components and the nature of the external components both provide restraints or limitations on the kind of information-energy that can be exchanged. Concerning components of the external environment, one can add several things. Components are diverse, they are constantly in a state of flux, and they are to a greater or lesser degree interconnected. It follows then that a system with a common set of goals is constantly called upon to interact with a diversity of other systems with distinct goals in such a way that it is mutually beneficial, or at least not destructive to each other. Second, these kinds of interactions can almost never be frozen into patterns or blindly repeating exchanges. This is true because not only is the college or university an open and adaptive system, but so also are many of the components with which it is interacting. They are all therefore in a constant state of change vis-a-vis their own external environment. Finally, the college or university and its critical external components are all locked into a larger system, such as a given society with certain political and economic contexts. Because they are interconnected, the relationships between all components are constantly changing. That is, if there is a radical shift in unemployment in a society, *all* the interrelationships of the critical components—private enterprise, the public, educational in-

stitutions, the federal and state governments—change. This obviously necessitates shifts in the total pattern of previous exchanges.

Given the open, information processing nature of a complex social system, there is still a need to examine more carefully the process by which such an entity goes about the formation of goals and the pursuit of purposeful action. The term that best describes this process is "feedback." We are not talking of some simple drive that guides, with some internal mechanism, towards some predetermined goal. We have constructed a much more difficult problem than that by describing a complex social entity as an adaptive, open system. And we have seen changes in the behavior of the system follow deviations in the goals themselves, so that the kind of feedback under consideration is not a simple reciprocal interaction. There are several characteristics that the open system brings by its very nature to a feedback process: (1) There are critical subsystems at the boundaries of the system with their own internal criteria; (2) These mechanisms are sensitive to specific environmental events related to their internal criteria; (3) These sensory organs must be able to record any deviations from the standards established by the criteria of the internal subsystems; and, (4) They can then adjust both the system's goals and the subsystems' limitations or criteria accordingly.

The simple thermostat meets these basic requirements as a system of components organized to deal with one aspect of the environment. It contains: (1) The establishment of a single criterion where a particular temperature setting has been set; (2) There are physical elements which are sensitive to the temperature of the surrounding environment; (3) The sensing mechanism, the mercury, is so structured that one can measure the deviations on either side of the setting, and therefore record the "mismatch"; (4) There is the ability to use this mismatch information to turn the heating component either on or off, so that the deviation is reduced or brought closer to the single criterion. Since the environment in which a thermostat exists is complex, it would be impossible to design a single simple unit with the purpose of producing X amount of heat to maintain a 68° temperature, unless one is able to control all the elements in the environment. It is much easier to establish a simple feedback mechanism such as the thermostat that can control the central heating system instead. The system then is not blind to different circumstances, and the behavior necessary to obtain the desired end is constantly adaptive.

Though the example is somewhat distant from the operation of a social institution, there are two rather interesting questions that arise from this discussion of a simple feedback tool such as a thermostat. First, in the evolution of a complex adaptive system such as a college, there is the constant management process of developing more

and more complex criteria-testing subsystems. For instance, as funding, or students, or faculty become a more diverse or scarce component to the system, more and more complex subsystems develop to deal with them. In the process, one is constantly building in criteria for the selection of students, or the promotion of faculty, or communication with the local community. These are sometimes done by happenstance, or by occasional planning, or by careful measurement; but they are done in every complex open system whether someone attends carefully to them or not. In terms of the overall purpose of a complex institution, the individual goals of the subsystems at the periphery of the organization must be at some point mutually interdependent. This often requires constant reassessment in terms of priorities and coordination. Second, even after one has decided what sensitivity criteria one wishes to build into the subsystems, one must pay constant attention to the "probing devices" used at the interface between the system and the environment. If the public relations office has only certain types of dissemination practices, or if the vice president for community affairs has only certain types of connections, or if the school of public affairs recruits only certain types of professors, the information flow from the environment to the system in a critical area is undergoing constant distortion, and therefore will find it extremely difficult, if not impossible, to regulate itself in the appropriate fashion, however carefully the criteria have been pre-established.

One last area in which research in general systems theory and complex social systems has only begun to touch is the double tendency that keeps social systems in creative tension. There exists at the same time processes that tend to preserve and maintain a system's given organization and state, and those other processes that tend to elaborate and change the system's forms and structures. Anyone engaged in "managing" these types of open social systems, of which the college or university is a prime example, deals with these tensions daily if not hourly. They are "learning systems," with all that connotes about self-regulation and adaptive organization. Still, there is nothing automatic or guaranteed about an open system continuing to be so, especially when the tendencies toward stability begin to dominate.

Social systems are, of course, composed of individuals who themselves bring many of the characteristics of "open" systems to their social existence as well. Since managers are often engaged in the process of moving new information into systems, keeping information flowing between the system and the environment, and coordinating the internal organization into a purposeful whole, they also often confront an almost incomprehensible resistance to movement, adaptation, and change. Donald Schon in his book **Beyond the Sta-**

ble State calls this tendency to fight to remain the same, "dynamic conservatism."

The process of becoming part of a social system, for Schon, is a total and complete immersion in a series of subsystems, not only of a formal nature, but of a normative type, that begins to form part of a self-identity.

> When a person enters a social system, he encounters a body of theory which more or less explicitly sets out not only the "way the world is" (*environment*) but "who we are," and "what we are doing," (*system*) and "what we should be doing" (*purpose*).[3] (Emphasis added)

If Schon is correct then the resistive tendencies of social systems and individuals within them become more understandable. Social systems provide a source of livelihood and perhaps some economic security, but more profoundly, they may provide a framework of values and a context of meaning that become part of who one is. Threats to the social system are therefore much more; they are threats to this framework.

To return to the "feedback" process. When crucial information is refused by the system, or the reactive, corrective mechanism is jammed, the purposes of the system and the shifting environment grow farther apart. If the "correction" comes, it can come violently, depending on the distance or "log" to be corrected to bring the system back to a goal-oriented state.

Finally, because of the ongoing nature of interchanges between the system and the environment, and the importance of circumstances in this process, the system is often called upon to "make judgments" about the need for action or inaction, tranquility or aggression. Since open systems are not self-sustaining, they make information-energy judgments that often develop into organizational styles in much the same way individuals develop styles. Nader-like consumer groups develop organizational patterns very different from the American Trial Lawyers Association. Antioch College and Princeton, Goddard and Santa Clara, all have different stances toward themselves and their external environments.

A MODEL

What follows is a "model" or frame of reference to help in clarifying orientations toward the system and the environment.

Orientation Toward the System—Attitudes or orientations toward a system range from having a high regard for that system to holding it in low regard. In the context of the model, the critical factor in making this judgment has to do with the planner's or deci-

[3]Donald Schon, **Beyond the Stable State**, New York: Random House, 1971, p. 34.

sion-maker's assessment of the resources of the system. So "high regard for the system" might be paraphrased by saying, "I believe that this system has capabilities, competencies, resources which can significantly contribute to the solution of the problem at hand or toward the achievement of a specific goal or purpose."

Example: In thinking about how a teacher might deal with a given student and with that student's relationship to his environment it is evident that the teacher's perceptions of the student's capacities, competencies, and resources will have a great deal to do with how the student is treated. Thus, if in a given learning situation the student is seen as having appropriate resources, the kinds of learning designs and educational practices that are employed, and even the administrative and policy decisions that are made, will be influenced by that orientation. Conversely, if the teacher or planner sees a particular student as having low capacity or limited resources in a given area, then plans, policies, reactions and patterns for dealing with that student will be significantly influenced by that orientation.

Note that in the above example the orientation may be based upon actual knowledge or experience with a given student (system), or it may emerge from a set of attitudes or pre-judgments about students in general. Note, also, that the system may be thought of as one person, but in some cases may be a group, a class, or another system.

In short, then, the strategies, processes, and plans the administrator uses for dealing with a given system as it relates to its broader environment are clearly shaped, in part, by the administrator's orientation toward that system.

Orientation Toward the Environment—The second dimension of the model has to do with one's orientation toward the environment or components of that environment. These again range from seeing environmental components as having capacities, capabilities or resources to contribute to solution of a problem or aid in dealing with a given situation to the other extreme of perceiving the environment (or components of it) as having a low level of resources or capacities. So "high regard for the environment" is simply a short-hand way of saying that the environment is seen as potentially making a real contribution to moving the client toward solution of a problem.

Integration of Concerns—The key point in development of the model is that orientations toward the system and orientations toward the environment (or components of it) are interdependent. If an individual has high capacity for contributing to the solution of a problem and environmental components have high capacity, then the way in which the system and the components interact is optimized when these resources are jointly made available and brought to bear on the situation at issue. In interpersonal terms, if individual A has resources, knowledge, and capacity to contribute to the solution of

problem X and there is a textbook, group, or other environmental component which has resources, capacities or information to contribute to the solution of problem X, then it is clearly desirable for these two components to come together. Thus, when the system is seen as having capacity or resources and the environmental component is seen as having capacity or resources, the best way of working on the issue would generally seem to be *interactive*.

If, however, the individual or the system is seen as having high capacity but the environmental factors are seen as having little to contribute, then it would seem best for the system to draw on its own internal resources. This pattern can best be described as pro-active. That is, the system is the key resource, the energizer, the initiator of action, the problem solver and the environment has little to contribute.

In the converse situation, if the system or client is seen as having limited resources or capacities regarding a given problem or situation but there are capacities or resources in the environment, then the system should be *reactive*. Put in another way, it may be best to utilize or be shaped by the resources or capacities that are present in the environment in regard to a given situation.

Finally, if in a given situation neither the system nor the environmental components involved are viewed as having capacity to contribute, then it may be best for both to remain *inactive* regarding the problem or situation at hand. Put in very simple situational terms, if an individual wished to cross a turbulent stream and it became clear that he did not have sufficient capacity or resources to cross the stream on his own, and he looked around at his environment and found nothing to aid him in getting across, then it might be best for him to give up the venture. So he would remain inactive.

It is important to recognize that the model does not attempt to define behavior at all times and in all situations. Rather, the patterns that are suggested are always relevant to a given time, a given place, a given problem-situation. Furthermore, these judgments are often the result of human perception which can be faulty and which may shift from moment to moment.

The model can serve two purposes: (1) to provide a framework for describing an existing strategy which is being followed by a system as it relates to its environment, and (2) to provide a framework for defining strategies for the employment of resources to achieve the purposes of a specified system.

Descriptively, if both the system and its environment are giving and receiving information, are shaping and being shaped by each other's behavior and information flow, then clearly the system and the environment are interactive. If the environment is shaping the system, if the energy, resources, direction and influence are flowing

from outside the system into it, then the system is reactive. Conversely, if what is happening is that the system is giving information and shaping and energizing the world around it by using its own resources, then the process is clearly pro-active. Finally, if there is no exchange of energy, no interaction, no shaping going on either way between the system and its environment or components of it, then at the moment, at least, the process is inactive or dormant.

But one might wish to go beyond merely describing "what is" and ask: "What is desirable and under what circumstances is it desirable?"

Two notions are central to answering this question:

(1) A human system has difficulty responding adequately in any given situation unless it has an information base and a value system from which to construct a response. In a sense, then, the system needs to sift through its own pool of knowledge, its own resources, as it attempts to relate to the world around it.

(2) A system can't very well respond to the world around it unless it is sensitive to and perceptive about that world, unless it asks the right questions about itself and about the environmental components with which it is interacting.

The questions that should be asked to define strategies emerge from notions fundamental to cybernetics, information exchange, and the behavioral sciences. These are that:

(1) Everything is connected to everything else.

(2) All components of a living system and many aspects of its environment are in the process of change.

(3) Diversity exists within a system and in its environment and must be utilized if survival is to be assured.

When these notions are joined with considerations presented earlier in this paper regarding the capacity of the system or environmental components to respond, the decision-maker or educator has a framework for defining a strategy. Thus, use of the model is aided by identification of the kinds of perceptions, attitudes, and values which exist toward the system with respect to the following factors:

a) Perception of the system as a resource, as having competency or capabilities.

b) Perception of the system as having boundaries, making it distinguishable from other systems.

c) Perception of the system as being comprised of its own subsystems, having its own internal interdependencies.

d) Awareness of, and valuing, differentiation and variety within the system.

e) Recognition that the system is more than simply the sum of its parts.

Similarly, it is necessary to clarify the meaning of having high regard for the environment. The factors which are present include:

a) Perception of the environment as having resources, competencies and capabilities.

b) Perception of the environment as comprised of differentiated components with distinguishable boundaries.

c) Perception of the environment with its components interacting and interdependent.

d) Awareness of, and valuing, the differentiation and variety which exists within the environment.

e) Recognition that the environment is more than the sum of the components of which it is comprised.

SUMMARY

Once the problem area, the situation, the survival needs of those involved have been identified, the following specific actions can be taken:

(1) Identification of the system of concern in a given problem situation.

(2) Identification of the critical components of the environment with which the system is interacting or needs to interact in order to survive or produce positive results.

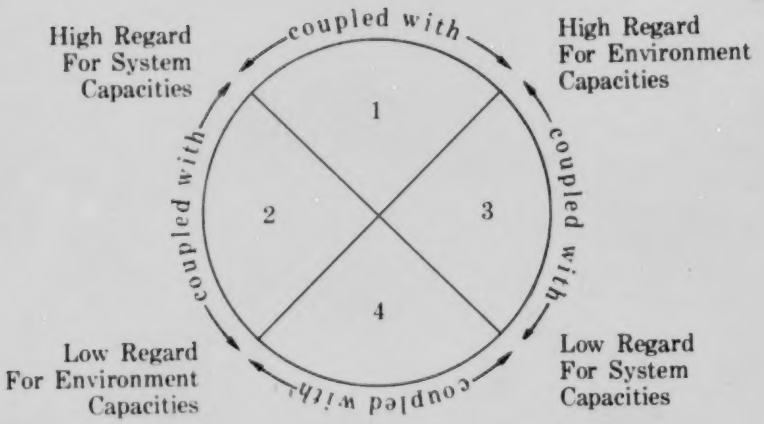
(3) A searching and probing of the environment and of the system in order to develop a deeper understanding of its value, of its differentiated parts, of its uniqueness.

(4) Development of the needed mechanisms, capacities, processes necessary to utilize appropriately that which is available in the environment and in the system to achieve results.

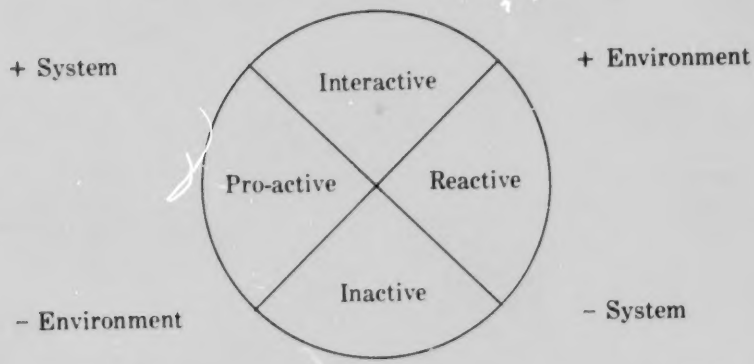
(5) Finally, development of processes and activities which sustain or elaborate that which is functional and contributes to the health of the system and its relationships.

SUMMARY—THE MODEL

The interdependencies described above can be shown diagrammatically as follows:



Each of these four quadrants can be described by a word or phrase:



FREEDOM AND THE SCOPE OF LIBERAL EDUCATION

Joseph J. Schwab

Programs of liberal education are supposed to liberate their clients, free them. The grave problem of constructing a serviceable liberal program is posed by the complexity and variability of the factors involved in freedom.

A small boy finds the courage to run away from a tyrannical father. He gathers some money and a few belongings and hitches a freight train to a nearby town. Once there, he is "lost": knowing neither what to do nor how to do it, and too frightened to see the suggestive clues afforded by the ambience of new place and people. Even were he unafraid, he would need, for freedom, to know what sorts of people to approach and how to identify such persons. He would need command of the language necessary to explain his predicament and obtain sympathetic hearing and help. Sympathetic help would be obtained only by "arguments" (including a winning manner) which could overcome the prevailing view that children are parents' property, require parental supervision and are unreliable judges of their situations. Even if these barriers to freedom were overcome, the child would need to find a useful role to play and have the competence to learn to play it.

This extraordinarily simple situation indicates some of the factors involved in liberation. There are affective factors: the child's originative rebellion, his later panic and regained self-control. There are symbolic factors: the needed language and rhetoric. There are cognitive factors: knowledge of kinds of people and of signs of membership in a kind; competence to discern societal wants and needs and competence to contribute to one or more. There are conative factors, acts of willing and doing: the original flight and renunciation of the home's supports; approaches to persons and readiness to accept and play a social role; inurement to this new "tyranny"; preparation of and for occasional relief from the new tyranny and recreation for return to its demands. There are social factors: the mores of the new haven, its social and political structure, the kinds of roles and persons which compose the social structure.

Coloring all of these are factors which are both cognitive and affective, social as well as symbolic: what the child believes freedom to be; what freedom he expects; what freedom he thinks is possible; what freedom he can tolerate.

If the tyranny were one of ignorance, incompetence and immaturity, that is, if the victim were an emerging adult, the same factors

Copyright 1976 by Joseph J. Schwab

would be involved. In such a case, there would be needed freedoms from affective chains: notably caring too much or too little about what others think, propensities to abject conformity or reckless defiance, and indulgence and dramatization of depression, anxiety and self-pity. There would be appropriate freedom from local-topical social constraints, especially constraints on alternatives entertained and prejudices which exclude human groups from the person's moral community. There would be freedom from cognitive limitations: ignorance, superstition, lies, and illusory expectations.

In addition to freedoms *from*, there would be freedoms *to* and freedoms *of*. There would be freedom of the city of the word—philosophy, history, the novel, drama and lyric poetry—and of plastic arts and music, some of thi[illegible]m active as well as appreciative. There would be freedom to e[illegible]a views and values alternative to those currently held. There would be freedom for prudent choice and for action against the grain.

Education pertains to all these freedoms, including those only occasionally conceived as part of liberal education in the setting of a school. There are, furthermore, formal resources appropriate to these freedoms from which to draw for collegiate curricular purposes.

FORMAL RESOURCES FOR A LIBERAL CURRICULUM

1. *SYMBOLIC*

   Language
   Myth (folk wisdom)
   Art
   Common places (Topica)

2. *COGNITIVE*

   The Known and Thought (embodied in written discourse)
   The Opined (in written discourse; in oral exchange)
   The Beheld (in things, and in acts, human and other)

3. *CONATIVE*

   Impulsive acts and their consequences (by students; by others)
   Acts chosen, reflected on
   Acts self-controlled (impulsions suspended and mediated)
   Imposed acts (imposed deliberately; imposed by a social system)
   Habits

4. *AFFECTIVE*

   Moods and emotions (felt and undergone; signalled by others; described and interpreted in literature and art)

5. *SOCIAL*

Interpersonal roles
Socioeconomic roles

Among these resources, only the symbolic and cognitive are commonly drawn upon for curricular purposes and even some of these are ignored or sparely used. The prevailing academic habits of reading and lecture constrict oral exchange of opinion among students and faculty, and where such exchange occurs, it consists mainly of confrontation and debate, rarely of a dialectic leading to more defensible opinion. Myth has become unfashionable or limited to nondeliberate promulgation and then only of myths current and approved. Topics had until recently fallen into desuetude, and revived mainly as structures of persuasive rhetoric. Their roles as resources for organization of thought and as evocations of creative effort are rarely put to use. Further, the known and the opined are confused for students by a prevailing rhetoric of asserted conclusion which minimizes consideration of evidence and argument in the interest of coverage. Finally, the beheld is usually limited to the structured laboratory "exercise" and the guided field trip. Yet much with potential liberal effect lies in the social situation of dormitory, classroom, coffee shop and street.

Among resources other than the symbolic and cognitive, conative and social resources can be mobilized for liberal purposes by at least two readily available means. One of these concerns the teaching-learning climate afforded by classrooms and campus. The classroom can be re-ordered to constitute a learning *community* by replacing a substantial part of the prevailing individual effort and competitiveness with collaborative learning. Pairs and trios can be given responsibility for obtaining, presenting and clarifying materials needed by the group as a whole. One student can be invited to act as respondent and critic of another in the course of discussion. The group as a whole can be left to organize itself (without the presence of the official teacher) for selection and ordering of curricular materials, for mastery of a competence, or clarification of meanings and relations in a discourse under consideration. Some portion of the curricular materials can be chosen to render students and professor peers, both students, the materials equally new to both. In arranging collaborative efforts of two and threes, the members can be chosen to afford each participant experience of diversities of talent, propensity, and social-ethnic-religious-economic styles not afforded by his earlier milieus.

In the operation of such groups, students will act with respect to self-image and image of others, thus learning something of the diversity of persons and social roles which constitute a mixed society.

They will enter situations requiring suspense of impulse and reflection on possible consequence. They will discover the need for arts of discourse and persuasion and for adjustment to varieties of special interests. They will obtain some practice in these arts. They will also discover some of the intrinsic rewards of collaboration and amity and in consequence begin to acquire a propensity for such relations with other persons. These are, of course, contributions to freedom.

The second means for mobilizing conative and social resources is less far-reaching in effect. It consists of an honoring of the "arts of the practical" by way of participation and practice in decision, choice and consequent action. Practice of these arts can take place by expanding the notion of the learning community to include a cluster of communities on a campus among which services and facilities must be loaned and borrowed, hence requiring recognition of differences of interest, negotiation, decisions about cost and benefit, and a coming to terms with risk, uncertainty, profit and renunciation. Similar involvement in the practical arts can take place by way of simulations.

It should be added that a learning community with its association of persons of diverse competences, propensities and styles, as well as a cluster of such communities with its concomitants of negotiation and exchange, are means for the mobilization of affective resources, as well as the mobilization of the conative and social resources. Collaboration and negotiation involve increased awareness of mood and emotion and of their effects on behavior. They also provide occasion for control of one's own emotions, for taking account of the effect of mood on one's estimate of costs and benefits, and for noting and coping with the moods of others.

Curricular Materials

A narrow conception of learning and of the character of curricular materials often parallels the restriction of formal resources to the symbolic and cognitive. Learning is taken as perceiving, remembering and believing; curricular materials are limited to matters capable of perception, storage and belief. To be free, however, is not a mere state, much less a state consisting only of possession of a storehouse of lore. Freedom, on the contrary, is a cluster of propensities toward action. Consequently, there is much more to learning than remembering, and curricular materials have functions beyond that of being subjects of perception and memory. They must function, as well, to provoke, guide and refine the acts by which competences are mastered and propensities internalized. An overview follows of liberal curricular roles and actors.

CURRICULAR ROLES AND MATERIALS

1. *Matters to be known*
   - .1 Things and events (reported, seen, undergone, enacted)
   - .2 Data (things, events, etc., assigned coherence and meaning by a problem)
   - .3 Ideas and conceptions (for application to things, events, data) (for relating to one another)
   - .4 Conclusions (as derived for data and conceptions)
   - .5 Discourses (displaying movement from data, conceptions to conclusions)
2. *Examples for imitation*
   - .1 Tactics and strategies for solution of problems
   - .2 Argument (dialectic; rhetoric; logic)
   - .3 Analyses of genres (discourses, narrative, drama, poetry, music, art)
   - .4 Grammars, styles, etc.
3. *Challenges, provocations and exercises*
   - .1 Problems and dilemmas (real; simulated)
   - .2 Situations (real; simulated)
   - .3 Confrontations (real; simulated)
   - .4 Panoramas (*re* this item and above, see text following)
   - .5 Elations, anxieties, disappointments (ensuing from treatment of items above)
   - .6 Vices and privations (made evident by responses to .1-.4)
   - .7 Seductions (to superficial, inappropriate or stereotyped, responses to .1-.4)
   - .8 Affirmations and analyses (for critical appraisal *re* matters affirmed, analyzed)
   - .9 Contradictions, paradoxes, non-sequiturs (for identification, resolution)

With respect to models for imitation, tactics and strategies for solution of intellectual problems are supplied in part by topics or common places. The Aristotelian four causes, the components of the Deweyan problematic situation, and the Platonic image-thing relationship are cases in point. Attacks in terms of the four causes are available among physiological structure-function researches, in efforts in medicine to establish disease entities, and in Parsonian sociological studies. The Deweyan structure is used commonly in military and political tactical planning as well as in records of corporate and administrative planning. The image-thing relation can be found in political criticism and analyses which compare existing states/societies or constitutions with an ideal, and in efforts to provide means

for better approximation of real physical phenomena to their theoretical model. (It is worth noting that the problems attacked by all these means may be practical as well as theoretic-scientific.)

The other listed examples of models for imitation are reasonably evident, except the reference to analyses of genres. The "genres" in question could and should include philosophic works, scientific materials, and history, as well as works of art. The models proffered would afford insights into the kinds of questions appropriate to ask of such works in order to elicit their meaning, and some of the means by which the text is searched for answers to the question.

Two dangers attend the use of models, and especially models of analyses of genres. The dangers consist of misteaching students that one and only one mode of questioning is appropriate to a genre and that works fall definitely into one genre or another. The first danger is guarded against by affording a small variety of models, each of which addresses a work in a different way. The second danger is avoided by treating amenable works as members of two or more genres (a Greek tragedy as a work of art and as a moral commentary; a novel as novel and as social criticism).

The first four "challenges" listed (problems, situations, confrontations and panoramas) are variations on a common theme. Each is an invitation to enquiry, involving discrimination, invention and systematic thought. Three of them vary in the degree of structuredness afforded, therefore in the extent to which initiative and invention are required. Problems are true to their name—they pose a specified uncertainty or incompleteness: "What is the next number in this mathematical series?"; "How could we verify *this* hypothesis, given *these* conditions and facilities?" Situations are less structured; they call for identification and formulation of the problem, as well as for its solution. Nevertheless, they, too, have a considerable degree of structure compared to "panoramas." The situation has boundaries within which the problematic, and means for resolution of the problematic, are present though unidentified. In panoramas, on the other hand, a situation must itself be bounded. The panorama includes something problematic, includes factors available for solution of the problem, and contains much which has little or no bearing on either problem or solution. The challenged individual will need to make a threefold discrimination, and, indeed, a panorama may contain more than one problem and different means for differing routes toward solution to each problem.

Confrontations are problems, situations or panoramas as far as degree of structure is concerned, which involve persons and their behavior—intentions, attitudes, actions, imminent further actions—and call for problem-solving interventions designed to abate, divert or modify the imminent further actions. They involve, therefore, not

only problem formulation and solution but ethical judgment: what actions should be altered; what interventions are defensible as well as probably effective; what altered directions or modes of action are most desirable.

Elations (and satisfactions of lesser intensity), anxieties and disappointments are common emotional accompaniments of intellectual work which affect, for better or worse, the quality of the work and the attitude toward similar intellectual challenges encountered later. Their recognition, discovery of their effect, and practice in their appropriate control are as much contributions toward freedom as the intellectual competences which the work is designed to enhance.

Seductions of the kind listed are means for eliciting diagnostic signs of vices and privations not revealed in the course of ordinary address to challenges. They may consist of no more than apparently simple problems which require persistence and close attention in order to detect their full scope and complexity. The device may be more devious, such as an array of actually simple problems followed by a complex one. The purpose of detecting vices and privations is, of course, to set about their correction.

The remaining challenges (affirmations, analyses, contradictions, paradoxes, and non-sequiturs) are self-explanatory.

The existence of challenges among curriculum materials occasionally poses an embarrassing administrative problem. Conventionally trained trustees, parents, and community members usually interpret any item in the curriculum as equivalent to the multiplication tables: something taught as indubitably true. Consequently, such items as **The Communist Manifesto**, an egregiously biased political newspaper column, or a piece of bad sociological research, all of them presented to students as materials for analysis and criticism, can raise off-campus cries of "Indoctrination!" or accusations of corruption of the young.

The Variety of Liberal Constituents and Emphases

Some idea of the scope and variety of liberal-curricular components and emphases can be schematized in a 4 X 4 table. The row and column heads we shall use are as follows:

	Knowledge	Disciplines	Habits	Personality
Unified				
Classified				
Elemental				
Idiosyncratic				

The column heads (knowledge, discipline, etc.) represent possible contributions of curricula toward freedom. That is, in some views (and in some degree) we are free when we possess the right kind of knowledge. In other views (and to some degree) we are free when we possess and use the right competences. In a third view, freedom consists of ready patterns of behavior vis-a-vis persons and situations, or freedom consists of the appropriate, well-formed personality.

The column heads as a set adequately encompass the universe of curricular components in the "Western" tradition, both recent and past, as far as I know that tradition. They do not, obviously, subsume "Eastern" curriculums and conceptions of freedom, nor those rooted in oral cultures. Within the set, the distinctions work reasonably well though, as names, "discipline" and "habit" pose a small problem, since disciplines are habits in one or both of two senses: a discipline is a propensity to do, as well as a competence to do; a discipline is learned by doing. In the completed table to follow, the distinction will, I think, be made clear.

The distinguished factors are, of course, inter-related. Disciplines entail knowable materials on which to operate and the memory which makes knowledge possible is, in part, a discipline. The mastery and use of discipline affect personality and personality can be a help or hindrance in the mastery of disciplines and the formation of habits. It is because of such inter-relations that I have called the factors *components* of liberal curricula rather than kinds of curricula. Nevertheless, pro[illegible]sorial habits are such that one component or another is often treated as if it were independent and sufficient.

The row heads, adapted from Richard P. McK[illegible]n's **Schema of Philosophical Semantics,** represent possible philosophic views of the appropriate character of knowledge, discipline, habit, personality. That is, the knowledge appropriate to freedom may be conceived as a synthesis of academic specialisms. It may be conceived as falling into a few large classes of knowledge or as emerging from a body of constituent and irreducible elements. It may be conceived as the

knowledge shaped and selected by a person peculiarly fitted to make such selections and modifications. Similar distinctions can be made with respect to disciplines, habits and personalities, though when applied to the last, the distinctions are somewhat strained. I choose this array, despite its last-named weakness, because professorial views and attitudes, uncontaminated by consideration of current problems and students' privations, are by far the most conspicuous determiners of most liberal educational programs.

We turn now to a fleshed out schema and consideration of some of its content. *(Schema appears on page 70.)*

By way of clarification, we shall examine some members of some of these cells with special reference to their strengths, to objections which can be raised to them, and to some of the problems they are likely to create.

Knowledge

Knowledge, or what can be made to pass for it, continues to be the staple academic merchandise. In most instances, consequently, liberal ends are sought by trying to discern the form of knowledge which will liberate, or to discriminate those departments of knowledge which appear to possess greatest liberating potential.

At times, this emphasis on knowing is the outcome of reflection. The bondages imposed by ignorance, superstition and zealotry are noted, and freedom is seen as freedom from such bonds. The premise is sound, the conclusion a half-truth. Ignorance and superstition constrict and misguide thought and action. Zealotry hypostasizes ends and forbids thought. Their removal is desirable. Unhappily, removal of these poisons is not as easy as it may appear to be and men purged of them still need, for freedom, the competence to transmute capacity for motion into actions, elected from alternatives, and charged with energy.

Removal is not easy because, first, we cannot prove, nor even evidence, the probable, where invention and entertainment of alternatives are themselves rejected. Yet, this is the condition of superstition and of zealotry. Second, we cannot prove or evidence what we do not know. We do not *know* that the stars in their courses are indifferent to our fates or that other worlds and other beings are not superposed on ours and us. We have no *science* which demonstrates the true end and the correct means for us here-now, nor a safe *technology* by which to imbue the true end and correct means with desire and energy.

That freedom from ignorance, zealotry and superstition, were it attainable, is not freedom entire is made clear by consideration of the ties which relate knowledge, action and passion, and all three of

CONSTITUENTS OF LIBERAL PROGRAMS*

	Knowledge	Disciplines	Habits	Personality
Unified	Syntheses (1) (History) (Philosophy) (Religion) (Politics)	Dialectic (2) Critic Communication Creativity Problem-solving Citizenship	Social Role (3) or station Idiom & stance "Correct" speech	Holistic (4) psychotherapy Self-consistency Whole man "Identity"
Classified	Principles (5) Ideas Concepts Problems Themes	Methods (6) Arts or disciplines Knowing-making-doing Moral virtues Great issues Life roles	Customs-mores (7) Manners Plattitudes-maxims Standardized personal relations	Rectification (8) of symptoms Relational problems Other privations
Elemental	Facts (9)	Primary mental (10) abilities Observation-interpretation-application	Rudimentary (11) morals *e.g.*, Thrift Punctuality Industry Attentiveness	Pleasures- (12) satisfactions Demands and obligations Roles
Idiosyncratic	Concepts (13) Opinions Tastes and prejudices (Mark Hopkinsism)	Adaptation- (14) accommodation Opinion formation	Mannerisms (15) "Styles"	"Philosophy of (16) life" "Life-style" "Identity" "Commitment"

*Twentieth-century examples of a number of these will be found on page 87.

them to the milieu in which they arise. "Right" knowledge does not of itself lead to "right" action. Appetites, predilections and indifferences interpose, which arise from personality. Incongruence between practical problems and the boundaries of present fields of knowledge demand disciplines of eclectic combination, and of application, of bodies of knowledge possessed. Habits ingrained by our culture and society constrain thought, direct action and predispose the attachment of passion.

Knowledge, then, is not enough. Let us, nevertheless, examine some of the forms which knowledge-loaded programs take.

Syntheses of Knowledge (Cell 1)

The specialisms which characterize our knowledge correspond neither to the practical problems which beset us nor to obviously natural joints in nature. One solution to this problem is synthesis or integration, creation of a body of unified knowledge, for purposes of liberation.

Unfortunately, the boundaries which separate one body of knowledge from another have origins deeper than the crankiness of scholars or their indifference to the uses of knowledge. A mere chunk of the world is selected for enquiry because the whole world is too much to cope with—to complex, too extensive. A chunk so selected is readied for enquiry by imposing on it a conceptual structure which separates the chosen part from its myriad connections with the rest of the world and confers on the isolated part a mode of existence—parts and relations of parts—such as organ-and-function, element-and-compound, scene-character-action, supply-and-demand. The conceptual structure readies the fragment for enquiry by telling us what questions to ask of it, what data to seek for answering the questions, and how to interpret the data. Since question, data and interpretation arise from the imposed structure (the "principle of enquiry"), the knowledge which accrues is also in the terms of the principle. We "know" an organism when we know its organs and their function. We "know" motion and rest when we know what forces are at work on what masses, with what direction and intensity.

Unification of knowledge requires, then, either a new principle of enquiry so powerful that it will embrace the rich complexity of the whole world of enquiries (synthesis), or invention of intermediary terms which establish meaningful connections among such notions as mass, free-market, enzyme and plot (integration). A genius may do one or the other some day. So far, he has not.

Where synthesis-integration *per se* is seen to be too difficult, there may be resort to integration after the fact. Selections from recognized fields of enquiry, each selection organized in the terms of its source-field, are followed by a terminal course which undertakes

retrospective integration. The usual candidates for the integrative function are history, philosophy, theology and politics.

Historical integrations may be of a time (synchronic) or through time (diachronic), depending on faculty preference. In synchronic integration, the commerce, polity, science, art, manners and morals of a period (our own, with or without another for the sake of contrast) are shown to bear relations to one another or to a general "spirit of the time." The relations chosen may be mutual causations, in which each treated factor is shown to affect and be affected by all or most others, or the various treated factors are shown as taking their cast from some dominant institution or movement (*e.g.*, industrialization, urbanization, exhaustion of natural resources, depersonalization of social roles, revolt against depersonalization, erosion or revitalization by a political structure).

Diachronic integration "makes sense" of the various facets of the known present by exhibiting them as a stage in progress from some primitive beginning, as deterioration of a past perfection (for example, the polis), or as variations on a perennial theme. The latter may or may not be accompanied by evaluations and suggestions of reform grounded in principles which claim some independence of historical variation. It is doubtful whether attempted exclusion of such principles is desirable: The principles merely go underground, more or less insulated from recognition and discussion, but active nonetheless.

The variety of philosophic integrations preclude convenient summary. A few *ad hoc* differentia must suffice. Whatever their character, they may be used three ways: as dogma, as selected doctrine, as illumination. As dogma, a philosophic integration works by first segregating the "true" and "false" content of the specialisms. For example, "allegations of a biological solution of man or of syntactic competence among chimpanzees cannot be true; those who so allege are confused." The "true" content, thus segregated, is given organization (and therefore altered significance) as illustrations, amplifications or corollaries of the positions set forth in the philosophic dogma.

As a selected doctrine, one philosophic view is chosen from many, not as *the* truth, but as one accessible to students and throwing a helpful integrative light on the diversities of subject matter. For example, course planners who know well that Auguste Comte proposes a "Subjective" method and filiation of enquiries as well as an "Objective" one, may choose, in the interest of clarity and on the basis of real or supposed student limitations, to develop only the Objective integration. Given this choice, the various subjects of study from mathematics to sociology would be shown as related to one another as studies of progressively more complex organizations, or orders of

phenomena, in which successful understanding of higher orders is contingent on knowledge of the lower, since the phenomena themselves exhibit this dependence (*i.e.*, characteristics of society are restricted by the character of its constituent living organisms, live things by their chemistry, chemicals by their physical constituents).

Selective use of a philosophic doctrine differs from the dogmatic by its operation as well as by the spirit which determines its use. Comte's rejection of the metaphysical and theological in favor of positivism would be emphasized as his starting point, and its consequences not only traced but opened to question. Dependence of complex orders of phenomena on simpler ones as a principle of integration (Comte's Objective method) would itself be shown as justified by Comte's appeal to knowledge of humanity—its abilities and needs, thus indicating that the Objective integration entails another integration in which defensible enquiries into simpler orders of phenomena depend on investigation of the most complex—man and his logics (Comte's Subjective method).

Selective philosophic integrations, then, like dogmatics, use but one doctrine. They differ from the dogmatic by indicating the existence of limitations and alternatives.

Illuminative use of philosophy goes the obvious next step. Three or more integrations are developed and applied, the light shed by each set over against that shed by the others. Students begin to see, for example, the relations of subject fields as disciplines, that is, as the use of different but related methods and principles of enquiry; their relations as serving different but related ends (for example, Aristotle's division into sciences of knowing, doing and making—modernized as science, social studies and humanities); their relations as arising from differences and similarities of their subject matters. Ideally, students would be given practice in appropriate selection and use of these different integrative tools on different problems—a coupling of knowledge, discipline and habit.

By political integration, I mean selection, mutual adjustment and application of knowledge drawn from various fields toward the solution of pressing and extensive problems. A current case in point would consist of the bringing to bear of psychological, economic, political, ethical, sociological and technological knowledge on the solution of problems of air pollution, energy conservation or housing.

Such practical integrations have two strengths and two major weaknesses. One strength consists of their treatment of the *knowledge* of the various fields rather than of their problems, methods, principles or subjects of enquiry. I rate this as a strength since we are here discussing integration of programs which consist primarily of expositions of bodies of knowledge. Their other strength consists

of the patent "relevance" of such an integration to young members of a problem-beset and action-oriented society.

One weakness arises from union of the ephemeral character of the circumstances and details of practical problems with the constantly changing content of subject fields, especially the fields of the social sciences. Today's defensible solution may be highly inappropriate a year from now. This weakness would be much reduced if expositions of prepared eclectic solutions to practical problems were replaced or supplemented by models of and practice in the arts of eclectic combination and application of knowledge—again an instance of the liberal inadequacy of knowledge taken alone.

The other weakness—whose counterpart we shall encounter once again—consists simply of the trained incompetence of most members of most faculties to undertake the work of eclectic combination and application of knowledge. Their education has not only omitted these arts, it has been training in specialism: pursuit of a restricted body of problems pertaining to a restricted subject matter in a highly restricted set of terms. Each can point out a relevance of his field to a practical problem. Some can proceed to restate the problem as if it were primarily a problem in his field. Few can engage in the discourse which formulates the problem so as to encompass most of the facets collectively seen, adjust ("compromise") held tenets of one field to tenets of others, and combine the adjusted contributions to constitute a coherent solution to the practically formulated problem.

Classified and Elemental Knowledge (Cells 5 and 9)

Where the entire variety of human lores defies integration, smaller clusters, composed each of closely related fields, are more amenable to a degree of such treatment. One common and useful set consists of the sciences (often divided into the physical and biological), the social sciences, humanities and language (including mathematics).

One then proceeds—often by polling and "Delphi" techniques—to obtain a list of the major principles of each field. In this context, "principle" means not starting point, but terminus—the conclusions held by most practitioners in the field to be both important and well-grounded. These then become the chapter heads of a descriptive and explanatory rhetoric of asserted truth.

Often, some literary thread or "theme" is sought to lend the appearance of unity to the discourse. Established favorites in biology are "Exchange of Matter and Energy" and "Unity and Diversity"; in the social sciences, "The Individual and Society," "Conflict and Resolution," "Stability and Change."

A more sophisticated effort tries to identify the "underlying concepts" of each cluster, then to use these concepts as starting points

from which the principal conclusions of the field are shown to be derived. *Society, polity, community, culture, civilization* are global examples from the social sciences. *Role, caste and class, personality, aspiration, attention, authority, power, myth and ritual,* and *profit* are more modest instances from the same field.

The use of concepts in this fashion shares with selective and illuminating philosophic integrations a liberating strength conspicuously missing from the programs so far noticed. It is not a pure rhetoric of conclusions, of asserted truths. Conclusions are shown as "deriving from." There is some degree of some kind of intellectual movement, hence, whether intended or not, an invitation to students to follow and practice an art or discipline. Wherever there is concern for evidence, or the examination of argument and counter-argument, or a dialectic concerned with ambiguity and univocality, this liberating factor is present and to be treasured, even though there is little overt concern for arts or disciplines.

"Ideas" in Cell 5 refers to a means of organization similar to that of "concepts" but far more wide ranging; so far, in fact, that it belongs, by right, on the boundary between Cells 1 and 5, since it both unifies and classifies knowledge. Ideas (or words which stand for ideas) are sought whose great power lies in their ambiguity, hence in their capacity for specification to a very wide range of different problems and subjects. *Affinity,* for example has, or once had, meaning in both chemistry and human relations. *Fate* and *freedom* have their application in physics as well as human destiny. Ideas of similar power include: *subject-object, cause, chance, change, fact, order, quantity, identity, similarity* and *difference.*

A liberal program can be made, then, in which subjects and problems are both differentiated and connected with one another by following the transmutations of ideas as they move from problem to problem or field to field. In such a program, especially if treated as a disciplinary resource in which student and teacher together trace the transformations and returns of such ideas, connections are perceived among apparent diversities, groupings and regroupings of the "relevant" are discovered, wits are sharpened, and the ground is laid for a creativity far richer than the devising of mere novelty.

"Fact" programs go to the opposite pole. They treat facts as existential givens, independent of and antecedent to ideas or concepts. (One of the more wooden views in educational psychology talks about "concept formation" in precisely this way: a vector movement from sensory input to image to generalization or "concept.") Consequently, liberating knowledge is seen as the "basic" facts of each department of knowledge, and the program consists of requirements distributed among the beginning courses in each field. Needless to say, this relieves faculty members of a great deal of work and

thought.

Mark Hopkinsism

Someone, somewhere, once remarked, "Education is Mark Hopkins on one end of a log and a student at the other." I know that Mark Hopkins was a President of Williams College. I do not know who made the remark. I know what the remark means currently: The best liberal education consists of conveyance to the student by faculty Pied Pipers of gems of wisdom of their own choosing, unconstrained by canons of importance or soundness, and unrestricted by works or the structure of subject fields—except those chosen by the Model.

It is surely true that some Mark Hopkinses are truly men of wisdom and do, indeed, convey a liberal education. Unfortunately, faculty members are often chosen not on this basis, but by virtue of "charisma" or because they like to play the role. When a number have been so chosen and launched on the Mark Hopkins role, it is exceedingly difficult to separate real from apparent wise men and return the latter to safer occupations. Real or apparent, however, they save administrators time and effort.

Personality

The role of personality in constricting or enlarging the scope of freedom is obvious. Flaws of personality (both privations and corruptions) make potential competences inaccessible to their possessors, impose barriers between person and person with respect to communication or collaboration, and twist or inhibit the relations between persons and the world. Mature personality makes possible a fair estimate of one's competences, both their kind and degree, and renders them accessible. The more mature a person is, the less he needs to use others as devices for development of his selfhood (manipulating, provoking, attacking); hence, he can recognize others as selves, learn and teach with them, and collaborate. The world becomes similarly accessible, neither too fearful to explore nor something to be trampled and twisted as demonstration of prowess.

Nevertheless, some of the sturdier defenders of liberal education have taken the position that neither therapy nor maturation of personality is among its duties. This position is grounded in one or both of two assumptions: that the membership of collegiate institutions is incompetent to perform such functions; that the materials, methods and milieu of intellectual education are uncongenial to concerns for personality.

In the first half of this century, the dominant theories of personality and its development were at once so florid and so narrow that

both assumptions were justified. In these theories, the crucial determinants of personality were infantile traumas and crises so deeply imbedded that nothing short of demolishment and reconstruction (dying to be born again) could effect a change. The process of change was a full-time preoccupation of the beneficiary and required hours per week from the therapist.

In the succeeding twenty years, fresh and more varied light has been thrown on the matter. The ego-revision of Freudian doctrine made clear by exaggeration that persons other and later-met than the child's mother's husband could function as accessible models for the developing personality. The interpersonal emphases of Harry Stack Sullivan and his students indicated the extent to which revision of personality (and its growth) could arise in the course of person-to-person relations which were of the world, with purposes and outcomes of their own, not merely in the therapist-patient relation. The work of B. F. Skinner and his students disclosed the lability of many aspects of behavior and indicated how far they could be changed (and directed) through approvals and rewards ("approved" and "reward" are *not* words favored by Skinner).

These later emphases translate readily and (potentially) effectively into the milieu and methods which a well-planned program of liberal education would use in any case. The "teacher," supposing him to have a desirable personality, can function as a maturant model alternative to that proffered by the student's home. He can (again assuming him to have a degree of mature personality) render personages of history and fiction similarly accessible as instructive models.

Of course, neither of these conditions will arise automatically. The teacher must not only have a personality but make it accessible by being visibly more than a teacher of the young. His scholarly activity; his relations with family, friends, colleagues; his activities as neighbor and citizen need to be visible (in some degree) to the students. In the case of historic and fictional personages, the instructional problem is the reverse. The actions of such personages are already accessible in the media which display such personages. It is the springs of the actions which need to be disclosed: Oedipus' arrogance, Emily's self-possession, Socrates' courage and dedication.

The daily work of a liberal education can, similarly, be made to afford some of the person-to-person relations through which personality is revised and matured. Preparation for in-class work can be occasion for collaborations of twos and threes among students who read, abstract, reorganize and present materials to the remainder of the group. In such situations, there is occasion for responsibility to others (the group for whom the material is intended), for discovering modes of collaboration and putting them to work,

for discovering among peers a diversity of talents and their rewarding uses, as well as a diversity of habits and attitudes.

In-class work itself can serve similar functions. By form of question and example the teacher can convert the illiberal and common habit of discussion—declaration of "personal" opinion, defense of it at all costs, "winning" the argument—into a joint pursuit of the most likely story, involving the pooling of evidences and arguments, the consideration of various points of view, the testing of language, ideas and supposed facts against one another. In such a situation, attentive and sympathetic hearing is evoked. Persons become resources instead of opponents. Impulse is suspended. The fresh is given a chance to stand steadily beside the habitual. Pretense of knowing and other defenses are laid down to permit the asking of peers for clarification, explanation and information. Arid periods are sustained because of the fruits they will bear. The teacher can support the shy and fearful as the course of discussion evokes their impulse to contribute. He can similarly reward by approval the controls evoked in the over-assertive by the course of discussion.

It should be emphasized that such alterations and acquisitions are not merely of behavior in the here-now, limited to the formal discussion situation, but can be alterations and acquisitions of propensities to behave, genuine changes and maturation of personality. They become propensities to the extent that they are rewarded (reinforced) by the course and outcome of such discussions. The warmth which ensues on effective collaboration is one such reward. Another is evidence through facial expression and response that one has conveyed valued material to someone else with clarity and distinctness. There is a similar satisfaction in perceiving and conveying an obscure connection among ideas and facts, in a sudden "insight," in the mastery of something challengingly complex; and the intensity of such rewards is enhanced when the activities take place in company.

Nevertheless, something remains of the original strictures against a personality factor among the aims of liberal education. Neither adult nor near-adult is entirely labile. Some facets of personality, as Freud saw, are early formed and recalcitrant to change. A college education capable of shaping a "whole" man, an entirely self-consistent character (Cell 1), is, then, no more realistic than the hope of a true synthesis of all knowledge. However, rectification of many relational problems and fulfillment of a number of common personality privations (receiving help gracefully; affording help without price; suspense of impulse; willing confession of ignorance or confusion; unforced collaboration with peers; comfortable relations with authority figures) are both possible and desirable and enhance rather than burden the course of intellectually liberating education.

In the same coherence with its intellectual aims, a liberal program can convey access to certain sources of pleasure and satisfaction and act as midwife in the delivery of the satisfactions themselves: in discovery of the economy and order of argument, theory and art; in the use of and play with language; in the invention of alternatives with respect to practical problems and deliberation concerning them (Cell 12).

In the same fashion, though in a quite different mood, a liberal program can introduce the student to roles in his society and to obligations society may impose, making them either desirable, palatable, or targets of reform, depending on the role. It can do so by creating miniatures of them in the learning community, then making their social functions clear, exemplifying the satisfactions they involve, or the rewards they earn (if they do), or suggesting directions and means by which the student can help in their reform or eradication (again, Cell 12).

Mark Hopkinsism will have its undesirable effects, creating admirers and epigones among the highly dependent (Cell 15).

Disciplines

That we mean by "discipline" a competence to do has been made reasonably clear. The general character of disciplines is most readily conveyed by an example (from Cell 6) of disciplines based on methods and principles. The year-long course, Humanities 2, first first offered by the University of Chicago in 1942, offers such an example.

This course was grounded in the Aristotelian doctrine that every art or science generates its fruits according to principles of its own. It follows from such a dictum that full understanding of works generated by any art or science can arise only if questions are addressed to each work which derive from the principles which generated the work. Accordingly, the informative reading of an historical work is a discipline in its own right; the reading of a drama or novel is another; philosophical and rhetorical works each require their appropriate discipline; so also, works of science and the social studies. Russell Thomas epitomizes some of these disciplines in **The Idea and Practice of General Education** (Chicago—University of Chicago Press—1950). I paraphrase (and supplement).

The reading of history is directed to discovering the historian's aims, the data he considers appropriate to these aims, and the kinds of causes by which he explains the relationship of events. The reader must be concerned too with the sources of the historian's evidence and the philosophical assumptions, if any, which determine his view of what is important about the past.

The reading of rhetoric must raise questions about the character assigned by the rhetorician to himself and his audience, the manner in which he adapts his arguments (their selection, structure, and ordering), and the relationship of his "style" to the effectiveness of the argument.

Reading of drama and fiction is directed to eliciting the sources of the particular pleasures which are the ends of different species of "poetic" works. Accordingly, the primary analysis of an imaginative or poetic work seeks to investigate its nature as a created thing; to discover, that is, the unifying principle which determines what it includes and excludes. This leads to questions about the kinds of actions represented, thence to discerning distinctions of end among tragedies, comedies, and other species of action. These questions in turn involve questions of the interrelations of plot, character, thought, and diction to one another, to the unifying principle, and to the aesthetic pleasure which is the aim of the work.

Sound reading of a philosophic work is grounded in discovery of its principles, methods, and modes of interpretation, as well as of the problems it seeks to solve and the solutions it discerns, for problems are formulated and solutions are sought in any philosophy in accordance with the method, principle, and mode of interpretation which it uses. Moreover, since philosophic principles, methods, and modes of solution are various, their identity and their relations to one another and to problems and solutions in any one philosophic work are discoverable only if more than one such work is examined, and the several compared with one another.

A scientific work poses the need to determine what problem is being attacked, what data would permit its solution, what data are, in fact, being sought, and what principles are used to interpret the data.

These thumbnail sketches of generic disciplines appropriate to appreciation of written works suffice to convey a notion of "discipline" in general. They also betray some of the strengths and weaknesses of generic (classified) disciplines, as such. Let us examine some of these.

Classified Disciplines (Cell 6)

Ironically, one of the prevailing weaknesses of classified discipline programs is indifference to their own principles, that is, failure to consider alternative genera and their appropriateness for students in our time and place. For example, the program above sketched consists of disciplines in reading; the basis is a classification of works; each work is classified according to "the principles of the art or science which produces it." There are alternatives to each of these. The disciplines could have been disciplines of watching and hearing; of

drama as staged or screened; of music, dance, and sports; of painting and sculpture. (In fact, the Chicago program contained music and the plastic arts. They were located in another part of the Humanities program.) They could have been disciplines of doing: disciplines of discussion toward consensus, or the practical disciplines of generating, considering, and choosing among alternative solutions problems of existence. Given that disciplines of reading were a matter of considered choice (which they were in this case), the variety of reading disciplines could have been generated by consideration of the satisfactions to be derived from reading rather than from a classification of works: to be informed; to be stimulated to thought; to be entertained; to learn patterns and techniques of discourse. Given that disciplines of reading based on a classification of works were matters of considered choice, the division of works could have been based on the manner of discourse: narrative, declarative exposition, argument, one or more kinds of dialectic, deliberation, debate.

The universe of disciplines to be classified, and the principles of classification to be used, should, of course, be matters of deliberation by planning faculties. The deliberation, in turn, should include consideration of the initial state of the students to be taught, the conditions of their society, their probable places in it, and the kind of polity in which they will participate, as well as consideration of the wealth of alternatives proffered by the culture. Oddly enough, educators at the collegiate level are much more often preoccupied with the latter than with the former.

A second prevailing weakness of discipline-centered programs, and especially of those using generic disciplines, consists in their seduction of faculties from adequate consideration of other possible components of liberal programs (knowledge, especially). There is both a pre-audit and a post-audit seduction, so to speak. The pre-audit seduction consists of the argument: "We have little or no need to convey a synopsis of our field to the student, for we are teaching him to teach himself. Once master of the discipline of history (or fiction or philosophy) the field is open to him. A discipline mastered is knowledge virtual."

The argument is, in fact, sound. Unfortunately, there are factors of which it fails to take account. To have mastered the discipline of an art or science is not necessarily to have developed a taste for its use. The rewards the field of art or science might afford are not necessarily revealed by the few instances of its content which are used as disciplinary bones to chew on. Chicago's Humanities 2 was a case in point. At one time, its conveyance and exercise of the disciplines were so intensive that there was little time for introducing students to the range and variety of peoples, places, plots, and circumstances

which populate the English and American novel and drama. Only by virtue of previous education or by accident did some students come to know the variety of satisfactions to be found there. (This was also in part the fault of the disciplinary classification used. Its very heavy emphasis on the imaginative work as a created thing was tantamount to denigration of its reflection of human life and character. Cordelia was not a girl who went to France to return to England as a woman. She was a coherent part of the structure of the drama.)

The post-audit seduction consists of maturation of the pre-audit germ. The professor who has once renounced the purvey of knowledge in the interest of engendering a discipline, and who sees success in the patently developed competence of his students, obtains a reward which is rare in teaching: indubitable evidence of effectiveness.

Two of the strengths of generic disciplines have been suggested in the course of this discussion. First, mastery of such a discipline is to obtain access to a domain. Given some suggestion of what lies beyond the gates, the student does, indeed, have a world opened to him. Second, mastery of a discipline is an increment to selfhood, hence a contribution to personality as well as to intellectual growth.

There are pedoagogic and administrative advantages as well. Generic disciplines based on methods and principles match subject fields in which members of faculties have their training. Some of them, therefore, have the disciplines of enquiry from which these generic disciplines derive. The faculty members may need to be persuaded to be generous of their competence, but they need no retreading. The courses, too, have identifiable filiations with conventional subject fields and can be so recorded on student records. Transcripts, consequently, remain intelligible to admissions officers elsewhere.

There are, as indicated in the chart, other bases of classified disciplines. One of these, entered in the chart simply as "Arts or disciplines," has its foundation in classifications of language or of mental abilities, rather than in fields of enquiry. The traditional liberal arts —grammar, rhetoric, logic, and the mathematical quadrivium—are a case in point.

One great weakness of liberal arts programs in the narrow sense consists of slavish adhesion to the list itself—as if grammar, rhetoric, and logic named ineluctable givens. As a matter of fact, the very names of the arts have altered through the ages. The trivium is often seen as grammar, rhetoric, and dialectic, rather than grammar, rhetoric, and logic, for example. Where the names are stable, their meanings have changed from time to time. Rhetoric has ranged all the way from the art of moving men by their passions, through the

art of audience-appropriate selection of argument and style, to the art of treating or organizing a discourse. Finally, the liberal arts can justifiably be moved entirely away from language, so as to become, say, the arts of relating thought to action or the arts of relating thing, fact, and idea. (The latter is suggested in the chart as "Observation, interpretation, and application." I chose this name because these arts concern the fashion in which fields of enquiry are carved from the world by imposing ideas which discriminate and identify facts and give them their meaning, hence discriminate subject matters themselves, and pose new classes of problems for enquiry.)

One great strength of liberal arts programs in the narrow sense consists in the considerable degree to which they afford their own integration of knowledge, since they cut across subject matter lines and indicate some of their connections in thought or action.

That arts may be based on mental abilities is so indicated in the chart. One such classification, taken from Aristotle, discriminates demonstration (the "logic" of some trivium interpretations), art (how to make), practical wisdom (how to deliberate about means to wanted ends), intuitive reason (grasp of "first principles"; "induction"), and philosophical wisdom, an item we shall leave undefined. In modern times, similar lists (which include, interestingly enough, most of the Aristotelian intellectual virtues) have been developed by complex statistical methods, notably by L. L. Thurstone and his students.

A broader classification (indicated in the chart as "knowing-making-doing") emphasizes the tyranny of "knowing" in the academic and seeks rectification by rendering arts of doing and making coordinate with knowing.

Among the above, primary mental abilities and Observation-interpretation-application have been listed as elemental. They deserve this discrimination to the extent that they are treated as irreducible elements of mental activity. Aristotle so treated them, though his list was not intended as other than "dialectical," *i.e.*, one of several possible ways of identifying the fundamentals. Modern versions lay official claim to elementarity by virtue of statistical techniques which discriminated the mental activities which bear minimal correlation with one another. Observation-interpretation-application deserve status as elements since they are prior to and determinative of such referents as subject matters, bodies of knowledge, and what passes for fact.

Finally, the classified disciplines may retreat some distance from the intellectual by emphasis on moral virtues, great and perennial issues of polity and society, or life roles. (The latter discriminates the problems of citizenship, parenthood, management of a coherent personal life, and so on.) The retreat from the intellectual is by no

means a renunciation of it, since intellectual disciplines of many kinds will be involved in such emphases, but they will be focused and used in relation to other matters, hence lose their dominant, organizing position. This has its advantages with some students in some circumstances. It demands competences of faculty they may not possess.

The idiosyncratic disciplines hardly need clarification since they are an extension into the disciplinary field of a Mark Hopkinsism enlarged to become whatever in the social world around us we take as model for the shaping of our own modes of operation: the mental-moral habits of the social class to which we aspire; the economic class of which we intend to become members; pace-setters among denizens of society columns and television.

Unified Disciplines

Unlike attempts at unification of knowledge and personality, unification of disciplines often succeeds, though the product may turn out to be inappropriate to us in our time.

The most imposing of disciplinary unifications is that we have entered as dialectic (Cell 2). The word is ambiguous—as are most philosophic words—its meaning ranging from the Marxian and Hegelian to that of Aristotle and of Plato. We have reference to the latter two, singly or in combination.

The Aristotelian puts its emphasis on treatment of the various and differing views of the expert or well-informed in any or every field, its aim being to find the common truth inherent in the variety or to assemble appropriately their partial, incomplete contributions.

The Platonic dialectic involves the weaving of a similarly more likely story from expressed opinion (but not limited to the opinion of the expert) as one element, our perceptions of things as a second, and the wisdom embodied in the ordinary meanings of language as a third. It proceeds by juxtaposition of the apparently contradictory among these and by resolution of their apparent contradictions. Its operative word is "but." Thus one of the first arguments in the **Republic** begins by eliciting from one of the assembled company a definition of justice ("telling the truth and paying one's debts"). It proceeds by Socrates' asking, "But what if ---," the content of his tale being a possible event which involves payment of a debt but raises in its hearers the conviction that the payment in question would *not* be just. This "contradiction" is resolved by applying a distinction between what is just for friends and what is just for enemies. This distinction, in turn, is "but-ed," and so the argument proceeds.

Instrumentally, dialectical programs are distinguished by the virtual absence of subject matter distinctions or classifications of kinds of works or disciplines. Instead, works are read and discussed with

respect to any matter which they raise. Thus, a reading of **Oedipus** may be followed by consideration of fate, of the dividing line between pride and arrogance, of the character of tragedy or drama, of the symbolism of physical blindness and insight, of the relations of ruler and subject, of the possibility of extrasensory perception, or of sex. The outcome of any of these discussions may be juxtaposed to the outcome of others, and the outcomes may be set over against the content of other works (whether scientific, philosophic, or dramatic). The ruling principles of the discussion are clarity, distinctness, good quality of evidence and argument, and inventiveness in the search and discovery of connections which are not apparent or conventional as, for example, in noting a cogency of a matter of economics to one of poetry. (The desired erasure of conventional subject matter lines is most often achieved by reading works in their historical order or in random order.)

One great strength of dialectical programs consists in their internalization of what they most patently do: unhesitatingly transit across genre and subject matter lines. Such an internalization consists of a discipline of creativity, since one masters an art and habit of seeking widely for—and finding—connections. Another strength consists of the initiative accorded students with respect to the problems and issues raised when this initiative, unlike that of conventionally student-oriented programs, is coupled with demand for clarity, distinctness, cogency, and high quality of argument. These two contributions are strengths because they liberate students from the tyrannies of subject matter divisions, of experts, of someone to ask them the cogent question, and of unexamined beliefs.

The great weakness of dialectical programs lies in the demands it makes on its faculty. It is a demand which not only exceeds the preparation afforded by typical graduate training but flies in the face of the habit of specialism engendered by that training. No institution can successfully adopt such a program unless its faculty members are willing to undertake extensive re-education and only if one or a few members of that faculty are equipped to guide the re-education. The mere exchange among specialists of their specialized bodies of knowledge is no substitute.

The second entry in Cell 2, "critic," is represented in the small by the phrase, "straight and crooked thinking." In the heyday of empirical positivism, it was not only possible but fashionable to suppose that the indubitable truth, the right conclusion which followed from all the data, was the attainable goal of science, and anything not scientific was beyond the pale. Consequently, the great and universal discipline was criticism, the detection of slips in logic, inadequacies of evidence, the presence of unverified or unverifiable assertion. The student was educated if and only if he had a sharp eye

for the difference between the disguised definition and the "genuine" empirical statement and was immune to "rhetorical claptrap." "Gullibility" was the great sin.

Programs which made this emphasis usually proceeded by first forming courses which dealt with the then-supposed significant facts and theories about nature, society, human behavior and culture (science, social science, and humanities, in another language). These various courses were unified by the manner in which their various subjects were treated: in the spirit of criticism—no assertion without emphasis on the imperfection or incompleteness of the data which supported it, and on the assumptions which undergirded it. Consequently, all was tentative. The great virtue was skepticism indefinitely prolonged.

Gullibility is an intellectual sin but it is doubtful whether skepticism indefinitely prolonged is the corresponding virtue. Statistics have a lesson to teach us in regard to this. There is a statistical test which tells us the probability with which a difference (for example, the difference in number of recoveries between 100 patients given treatment A and the same number given treatment B) might have occurred by chance. The probability is expressed as a ratio: the result could have occurred by chance one time in ten, or one time in a hundred, or one time in a thousand. Concerning such probabilities, statistics speak of "errors of the first kind" and "errors of the second kind." Some research workers will accept a result which could have occurred by chance one time in, say, 50 as "significant," that is, as evidence of the real superiority of treatment A over treatment B. By so accepting, they run the risk of accepting as significant what is only the consequence of a coin flip. This is a case of error of the first kind. Other researchers, the "rigorous" ones, accept as significant a result which could have occurred by chance only one time in a thousand. They, too, may be errant. Their error may have been to discard as nonsignificant evidences of many important truths. They are guilty of error of the second kind.

Neither error is desirable. The risk of one or the other is, however, inevitable in a world of investigation in which utter certainty cannot be obtained. The dilemma consists in where and when to risk which error. There are reasons to suppose that we have overdone the demand for minimal uncertainty, that we suffer more from what we have refused to accept than from falsehoods welcomed. It may be time for assent.

Habits

We shall deal with habits by reference to only one entry of one cell (Cell 3) among "habits": the entry "social role or station."

Most of the kinds of programs we have discussed, and especially disciplinary programs, are, in an important way, presumptuous. They ape the liberal programs devised for the free and prosperous citizens of Periclean Athens. They assume, or act as if they assumed, that their clients were already free from want—want of reasonable certainty of adequate food, adequate housing, adequate care for their children-to-be, a place in the society of which they are nominal members. For many students at the collegiate level in the United States (even for the majority of students on many campuses), this freedom does not exist. They have little or no certainty about their material future. Their waking hours and many of their dreams are filled with this uncertainty and with search for means to assuage it. In that condition, the freedoms we have discussed appear to them as mere points on their children's horizons.

For these students, the liberating education is one which prepares them to take a place in their society, helps them become acceptable to those who dispense the means toward material certainties, and provides them with competence to perform services required by our society and demanded by the dispensers of material security. The vocationally-oriented program for vocationally-oriented students performs a liberal function.

Let such programs beware only that, in the course of their work, they do not dispense also the habits of unquestioning conformity and obeisance.

SOME INSTANCES

1. **History.** History of Western Civilization, University of Chicago, 1940's.
   Philosophy. Some Jesuit Colleges, 1930-50. Marxist programs.
2. **Dialectic.** Language, mathematics, great works as materials for exercise of dialectic. But see (6).
   Critic. Some courses, CCNY, NYU, 1930-50. Criticism, skepticism, as rationalism.
3. **Social role or station.** Socially mobile vocational orientations in many "State College" campuses currently. Fashionable women's colleges 1912-25. Career Ed. Ethnic Programs.
4. **Whole man.** Antioch, 1950 (But see (15)).
5. **Principles.** General courses in broad fields. Chicago, 1924-36; *Columbia* College; "Great Books" as sources of truths or best formulations.
   Ideas. "Great Ideas" (Adler 'Syntopicon').
6. **Methods.** Chicago, 1941. Emphasis on problems-methods-principles of enquiry in broad fields (science, humanities, social sciences, symbol systems).
   Liberal Arts. Trivium-Quadrivium at St. John's (Fluctuation and overlap *re* (2)).
7. **Great Issues.** Dartmouth.

Manners. Military academies and schools, 1920-40.
Standardized interpersonal relations. Some business schools.
Customs; mores. Some "religious" colleges.

8. **Privations.** Sarah Lawrence's emphasis on student "needs." (But see (15)). Encounter groups.

9. **Facts.** Arrays of elementary courses. Distribution requirements.

11. **Rudimentary moral virtues.** Nineteenth century schools for the underprivileged.

12. **Pleasure and satisfaction.** Consciousness-raising.

13. **All.** Great Teacher orientations.

15. **All.** Radical programs of 1960's. Student-interest emphasis at Sarah Lawrence. Free electives. Communes and encounter groups. Antioch social commitment.